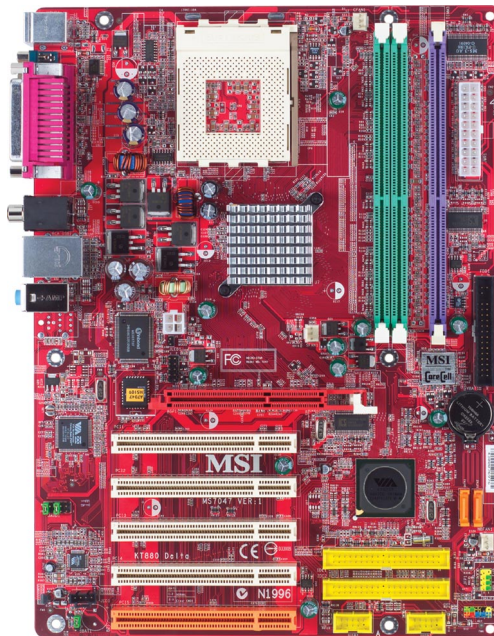




KT880 Delta

MS-7047 (v1.X) ATX Mainboard



G52-M7047X1

Manual Rev: 1.0

Release Date: March 2004



FCC-B Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense.

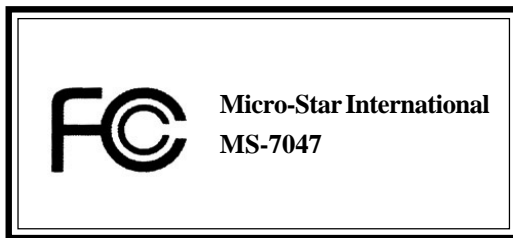
Notice 1

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Notice 2

Shielded interface cables and A.C. power cord, if any, must be used in order to comply with the emission limits.

VOIR LA NOTICE D'INSTALLATION AVANT DE RACCORDER AU RESEAU.



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation

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Revision History

Revision	Revision History	Date
V1.0	First release for PCB 1.X with VIA KT880 & VT8237	March 2004

Technical Support

If a problem arises with your system and no solution can be obtained from the user's manual, please contact your place of purchase or local distributor. Alternatively, please try the following help resources for further guidance.

- Visit the MSI homepage & FAQ site for technical guide, BIOS updates, driver updates, and other information: <http://www.msi.com.tw> & http://www.msi.com.tw/program/service/faq/faq/esc_faq_list.php
- Contact our technical staff at: support@msi.com.tw

Safety Instructions

1. Always read the safety instructions carefully.
2. Keep this User's Manual for future reference.
3. Keep this equipment away from humidity.
4. Lay this equipment on a reliable flat surface before setting it up.
5. The openings on the enclosure are for air convection hence protects the equipment from overheating. **Do not cover the openings.**
6. Make sure the voltage of the power source and adjust properly 110/220V before connecting the equipment to the power inlet.
7. Place the power cord such a way that people can not step on it. Do not place anything over the power cord.
8. Always Unplug the Power Cord before inserting any add-on card or module.
9. All cautions and warnings on the equipment should be noted.
10. Never pour any liquid into the opening that could damage or cause electrical shock.
11. If any of the following situations arises, get the equipment checked by a service personnel:
 - The power cord or plug is damaged.
 - Liquid has penetrated into the equipment.
 - The equipment has been exposed to moisture.
 - The equipment has not work well or you can not get it work according to User's Manual.
 - The equipment has dropped and damaged.
 - The equipment has obvious sign of breakage.
12. **Do not leave this equipment in an environment unconditioned, storage temperature above 60°C (140°F), it may damage the equipment.**



CAUTION: Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.

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Getting Started

Thank you for choosing the KT880 Delta (MS-7047 v1.X) ATX mainboard. The KT880 Delta is based on **VIA® KT880 & VT8237** chipsets for optimal system efficiency. Designed to fit the advanced **AMD® Athlon™ XP/Duron** processors in 462 pin package, the KT880 Delta delivers a high performance and professional desktop platform solution.

Mainboard Specifications

CPU

- Supports Socket A (Socket-462) for AMD® Athlon™ XP /Duron™ processors.
- FSB @ 400 MHz.
- Supports up to 3200+ or higher speed.

(For the latest information about CPU, please visit http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_cpu_support.php)

Chipset

- VIA® KT880 chipset
 - Supports FSB 400/333/266 MHz.
 - Supports AGP 8X/4X interface.
 - Supports Dual-channel DDR 400/333/266 memory interface.
- VIA® VT8237 chipset
 - High Bandwidth V-link Client controller
 - Integrated Faster Ethernet LPC
 - Integrated Hardware Sound Blaster/Direct Sound AC97 audio
 - Ultra DMA 66/100/133 master mode PCI EIDE controller
 - ACPI
 - Supports Serial ATA
 - Supports USB2.0

Main Memory

- Supports six memory banks using three 184-pin DDR DIMMs
- Supports a Dual-channel memory
- Supports a maximum memory size up to 3GB
- Supports 2.5v DDR SDRAM DIMM

(For the updated supporting memory modules, please visit http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_trp_list.php to refer the memory module part in the test report.)

Slots

- One AGP (Accelerated Graphics Port) slot supports AGP 3.0 8x
- Five 32-bit Master PCI bus slots (support 3.3v/5v PCI bus interface).
- Supports 3.3V/5V PCI bus Interface

On-Board IDE

- An IDE controller integrated in the VIA® VT8237 chipset.
 - Supports IDE HDD/CD-ROM with PIO, Bus Master and Ultra DMA 66/100/133 operation modes.
 - Can connect up to four Ultra ATA drives.
- Serial ATA/150 controller integrated in VIA® VT8237 chipset.
 - Up to 150MB/sec transfer rate.
 - Can connect up to two Serial ATA drives with RAID0 & RAID1.

On-Board Peripherals

- On-Board Peripherals include:
 - 1 floppy port supports 2 FDDs with 360K, 720K, 1.2M, 1.44M and 2.88Mbytes
 - 1 serial ports (COM A)
 - 1 parallel port supports SPP/EPP/ECP mode
 - 8 USB 2.0 ports (Rear x 4 / Front x 4)
 - 1 RJ45 LAN jack
 - 1 D-Bracket2 pinheader
 - 1 Line-In / Line-Out /Mic
 - 1 RCA SPDIF-Out

Audio

- AC97 link controller integrated in VIA® VT8237
- 6-channel software audio codec VIA® VT1617A
 - Compliance with AC97 v2.2 Spec
 - Meets PC2001 audio performance requirement

LAN (Optional)

- VIA® VT8237 integrated MAC + VIA® VT6122 / VT6103L (Optional)
 - Auto-negotiation operation of 10/100 LAN phy (VT6103L) or Giga-bit LAN phy (VT6122)

BIOS

- The mainboard BIOS provides “Plug & Play” BIOS which detects the peripheral devices and expansion cards of the board automatically.
- The mainboard provides a Desktop Management Interface (DMI) function which records your mainboard specifications.

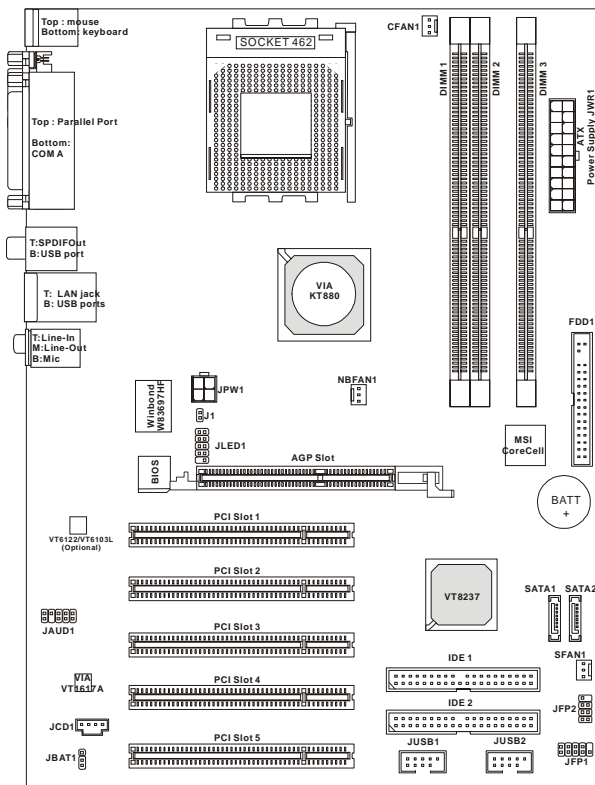
Dimension

- ATX Form Factor: 29.5cm x 21.5cm.

Mounting

- 6 standard mounting holes.

Mainboard Layout



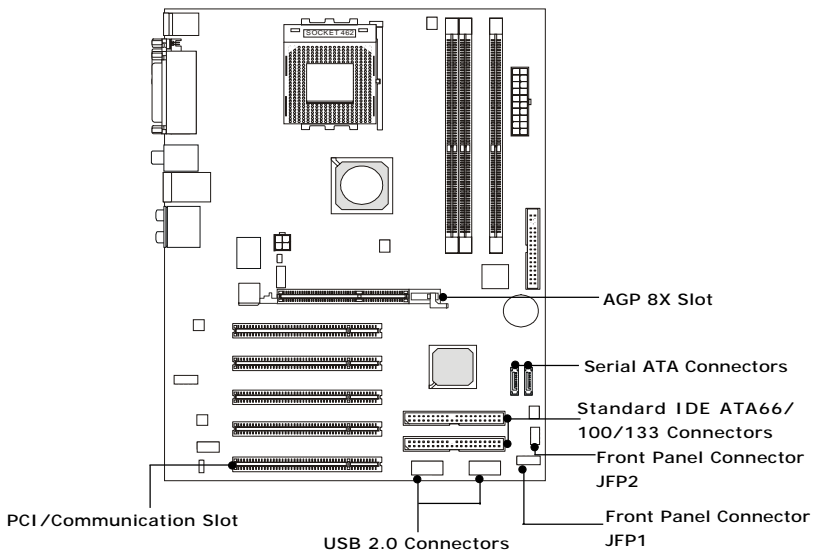
KT880 Delta (MS-7047) v1.X ATX Mainboard

MSI Special Features

Color Management

MSI has a unified color management rule for some connectors on the mainboards, which helps you to install the memory modules, expansion cards and other peripherals devices more easily and conveniently.

- Standard IDE ATA66/100/133 connector: yellow
- Serial ATA150 connector: orange
- AGP 8X slot: red
- USB 2.0 connector: yellow
- Front panel connector JFP1: HDD LED in red, Reset Switch in blue, Power Switch in black, Power LED in light green.
- Front panel connector JFP2: Power LED in light green, speaker in yellow.
- PCI/Communication Slot: orange



Round Cable (Optional)

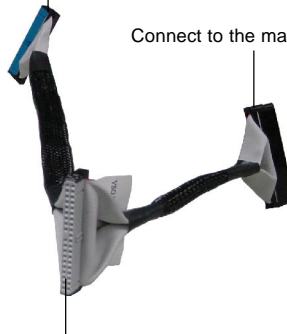
Round cable is an enhanced cable for PCI IDE and Ultra DMA controller. It has the following benefits:

- Data transfer rate started by 133MB/s
- Backward compatibility (ATA33/66/100/133)
- Higher performance than traditional Flat cable (data rate)
- Improved data robustness
- Better airflow due to thinner ATA/133 cable



Connect one end to the floppy disk drive connector (FDD1) and the other end to the standard floppy disk.

Connect to the system connectors on the mainboard.

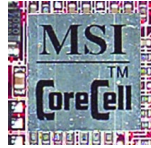


Connect to the master drive.

Connect to the slave drive.

Core Cell™ Chip

By diagnosing the current system utilization, the CoreCell™ Chip automatically tunes your motherboard to the optimal state, leading to less noise, longer duration, more power-saving and higher performance.



Features of CoreCell™

Speedster

- Advanced O.C. design.
- Superior O.C. capability.
- Greater O.C. method.



PowerPro

- Saves up to 65% power.
- Assures motherboard stability.
- Empowers O.C. Capability.



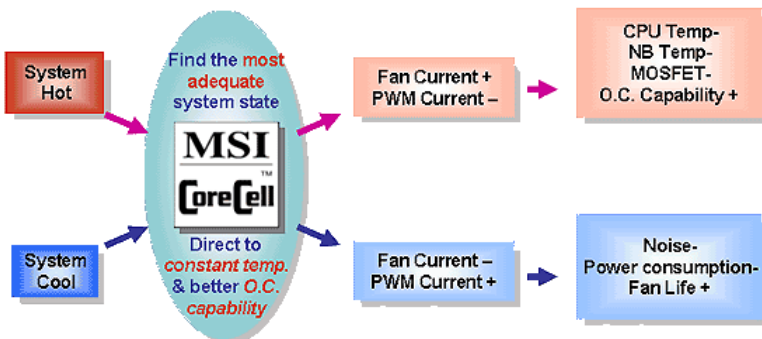
BuzzFree

- Diagnoses current system utilization & temperature.
- Controls both CPU and System fans.
- Cuts up to 50% of system noise.



LifePro

- Prolongs motherboard, CPU and fan life.
- Maintains motherboard & CPU in constant temperature.
- Prevents components from operating beyond specifications.



Dynamic Overclocking Technology

Dynamic Overclocking Technology is the automatic overclocking function. It is designed to detect the load balance of CPU while running programs, and to adjust the best CPU frequency automatically. When the motherboard detects CPU is running programs, it will speed up CPU automatically to make the program run smoothly and faster. When the CPU is temporarily suspending or staying in the low load balance, it will restore the default settings instead. Usually the Dynamic Overclocking Technology will be powered only when users' PC need to run huge amount of data like 3D games or the video process, and the CPU frequency need to be boosted up to enhance the overall performance.

D.O.T

Dynamic Overclocking Technology



MSI Reminds You...

Even though the Dynamic Overclocking Technology is more stable than manual overclocking, basically, it is still risky. We suggest user to make sure that your CPU can afford to overclocking regularly first. If you find the PC appears to be unstable or reboot incidentally, it's better to disable the Dynamic Overclocking or to lower the level of overclocking options. By the way, if you need to conduct overclocking manually, you also need to disable the Dynamic OverClocking first.

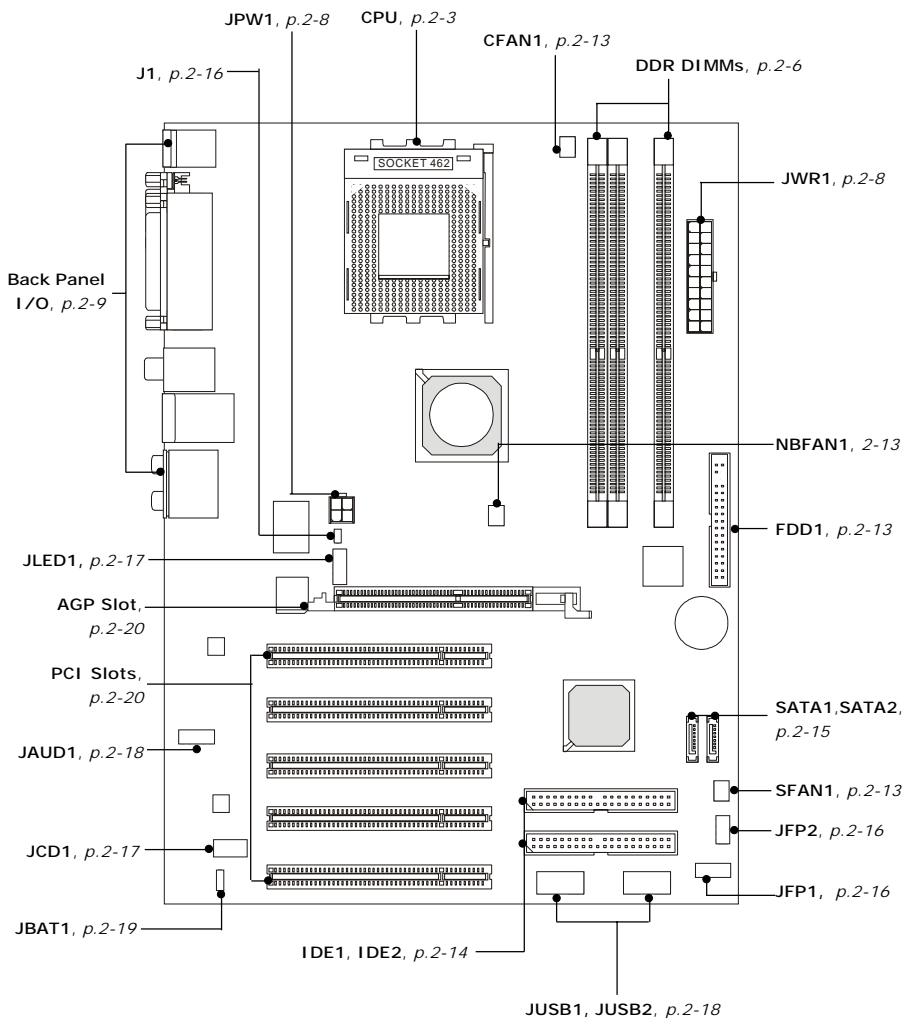
2

Hardware Setup

This chapter tells you how to install the CPU, memory modules, and expansion cards, as well as how to setup the jumpers on the mainboard. Also, it provides the instructions on connecting the peripheral devices, such as the mouse, keyboard, etc.

While doing the installation, be careful in holding the components and follow the installation procedures.

Quick Components Guide



Central Processing Unit: CPU

The mainboard supports AMD® Athlon™ XP and Duron™ processors in the 462 pin package. The mainboard uses a CPU socket called Socket-462 for easy CPU installation. When you are installing the CPU, **make sure the CPU has a heat sink and a cooling fan attached on the top to prevent overheating.** If you do not find the heat sink and cooling fan, contact your dealer to purchase and install them before turning on the computer.

For the latest information about CPU, please visit http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_cpu_support.php

Memory Speed/CPU FSB Support Matrix

Memory FSB	DDR 266	DDR 333	DDR 400
200 MHz	OK	N/A	N/A
266 MHz	OK	OK	OK
333 MHz	OK	OK	OK
400 MHz	OK	OK	OK



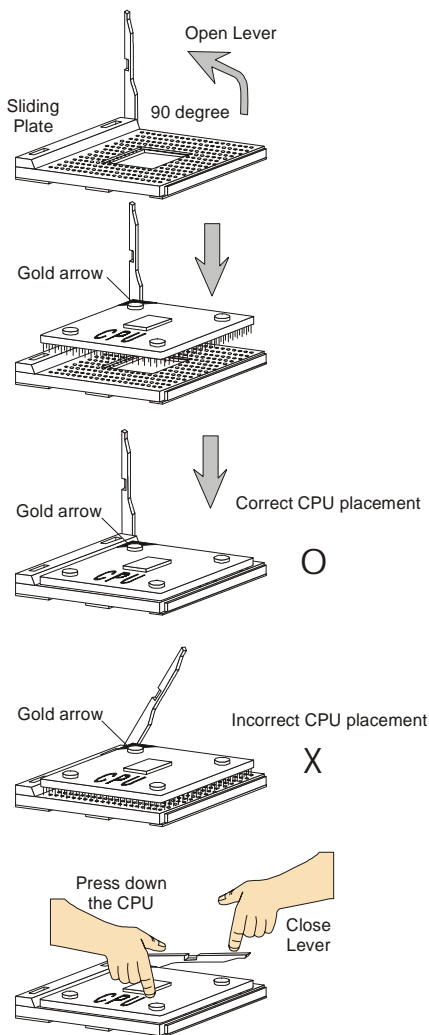
WARNING!

Thermal Issue for CPU

AMD Athlon™/Athlon™ XP/Duron™ processor with a speed of **600MHz and above** requires LARGER heatsink and fan. You also need to add thermal grease between the CPU and heatsink to improve heat dissipation. Then, make sure that the CPU and heatsink are securely fastened and in good contact with each other. These are needed to prevent damaging the processor and ensuring reliable operation. You can check AMD's web site for more information.

CPU Installation Procedures for Socket 462

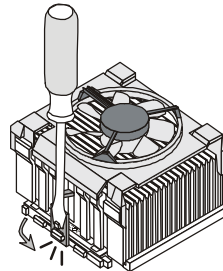
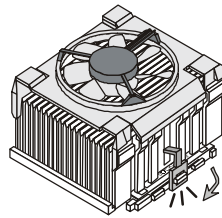
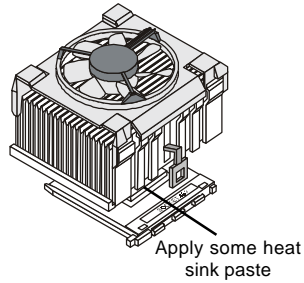
1. Please turn off the power and unplug the power cord before installing the CPU.
2. Pull the lever sideways away from the socket. Make sure to raise the lever up to a 90-degree angle.
3. Look for the gold arrow. The gold arrow should point towards the lever pivot. The CPU can only fit in the correct orientation.
4. If the CPU is correctly installed, the pins should be completely embedded into the socket and can not be seen. Please note that any violation of the correct installation procedures may cause permanent damages to your mainboard.
5. Press the CPU down firmly into the socket and close the lever. As the CPU is likely to move while the lever is being closed, always close the lever with your fingers pressing tightly on top of the CPU to make sure the CPU is properly and completely embedded into the socket.



Installing AMD Athlon CPU (Socket 462) Cooler Set

The following instructions will guide you through the heat sink installation procedures. Please consult your agent for the proper CPU cooler set.

1. Position your CPU cooler set onto the CPU.
2. Use one end of the clip to hook the latch of the CPU sliding plate.
3. Hook the other latch to fix the cooling fan set. You may need a screw drive to press down the other side of the clip.
4. Connect the fan to the power supply connector provided on your mainboard.



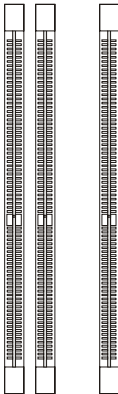
MSI Reminds You...

Please apply some heat sink paste on top of CPU to dissipate the heat more effectively.

Memory

The mainboard provides 3 slots for 184-pin DDR SDRAM DIMM (Double In-Line Memory Module) modules and supports the memory size up to 3GB. You can install DDR400 / 333 / 266 modules on the DDR DIMM slots (DIMM 1~3).

For the updated supporting memory modules, please visit http://www.msi.com.tw/program/products/mainboard/mbd/pro_mbd_trp_list.php.



DDR DIMM Slots DIMM 1~3
(from left to right)

Introduction to DDR SDRAM

DDR (Double Data Rate) SDRAM is similar to conventional SDRAM, but doubles the rate by transferring data twice per cycle. It uses 2.5 volts as opposed to 3.3 volts used in SDR SDRAM, and requires 184-pin DIMM modules rather than 168-pin DIMM modules used by SDR SDRAM. Please note that the DDR SDRAM can support ECC (error correcting code), but does not support registered DIMM.

DDR Population Rules

Install at least one DIMM module on the slots. Each DIMM slot supports up to a maximum size of 1GB. Users can install either single- or double-sided modules to meet their own needs. Please note that **each DIMM can work respectively for single-channel DDR, but there are some rules while using dual-channel DDR** (Please refer to the suggested DDR population table on p.2-7). Users may install memory modules of different type and density on different-channel DDR DIMMs. However, the **same type and density memory modules** are necessary while using dual-channel DDR, or instability may happen.

Please refer to the following table for detailed dual-channel DDR. Other combination not listed below will function as single-channel DDR.

DIMM1 (Ch A)	DIMM2 (Ch A)	DIMM3 (Ch B)	System Density
128MB~1GB		128MB~1GB	256MB~2GB

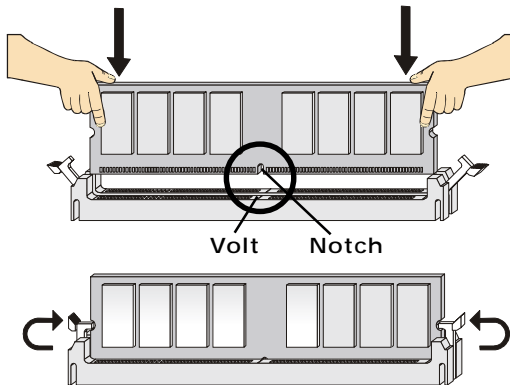


MSI Reminds You...

*Dual-channel DDR works **ONLY** in the DIMM1-DIMM3 combination listed in the table above.*

Installing DDR Modules

1. The DDR DIMM has only one notch on the center of module. The module will only fit in the right orientation.
2. Insert the DIMM memory module vertically into the DIMM slot. Then push it in until the golden finger on the memory module is deeply inserted in the socket.
3. The plastic clip at each side of the DIMM slot will automatically close.



MSI Reminds You...

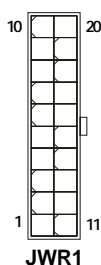
You can barely see the golden finger if the module is properly inserted in the socket.

Power Supply

The mainboard supports ATX power supply for the power system. Before inserting the power supply connector, always make sure that all components are installed properly to ensure that no damage will be caused.

ATX 20-Pin Power Connector: JWR1

This connector allows you to connect to an ATX power supply. To connect to the ATX power supply, make sure the plug of the power supply is inserted in the proper orientation and the pins are aligned. Then push down the power supply firmly into the connector.

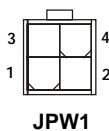


JWR1 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	3.3V	11	3.3V
2	3.3V	12	-12V
3	GND	13	GND
4	5V	14	PS_ON
5	GND	15	GND
6	5V	16	GND
7	GND	17	GND
8	PW_OK	18	-5V
9	5V_SB	19	5V
10	12V	20	5V

ATX 12V Power Connector: JPW1

This 12V power connector is used to provide power to the CPU.



JPW1 Pin Definition

PIN	SIGNAL
1	GND
2	GND
3	12V
4	12V

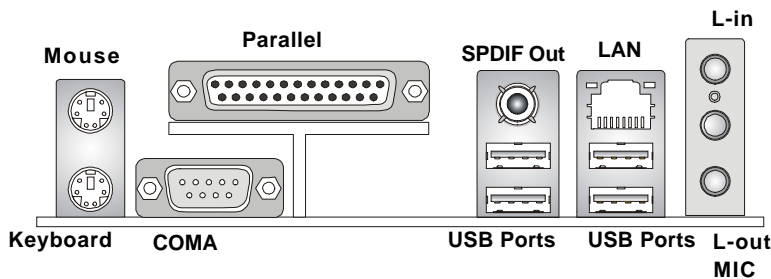


MSI Reminds You...

Power supply of 300 (and up) watt is highly recommended for system stability.

Back Panel

The back panel provides the following connectors:

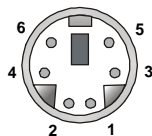


Mouse Connector (in green)

The mainboard provides a standard PS/2® mouse mini DIN connector for attaching a PS/2® mouse. You can plug a PS/2® mouse directly into this connector.

Keyboard Connector (in purple)

The mainboard provides a standard PS/2® keyboard mini DIN connector for attaching a PS/2® keyboard. You can plug a PS/2® keyboard directly into this connector.



PS/2 Mouse (6-pin Female)
PS/2 Keyboard (6-pin Female)

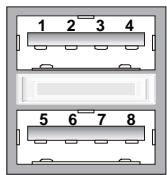
Pin Definition

PIN	SIGNAL	DESCRIPTION
1	Mouse DATA (or Keyboard DATA)	Mouse DATA (or Keyboard DATA)
2	NC	No connection
3	GND	Ground
4	VCC	+5V
5	Mouse Clock (or Keyboard Clock)	Mouse clock (or Keyboard Clock)
6	NC	No connection

USB 2.0 Connectors

The mainboard provides a UHCI (Universal Host Controller Interface) Universal Serial Bus root for attaching USB devices such as keyboard, mouse or other USB-compatible devices. You can plug the USB device directly into the connector.

USB Port Description

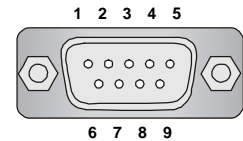


USB Ports

PIN	SIGNAL	DESCRIPTION
1	VCC	+5V
2	-Data 0	Negative Data Channel 0
3	+Data0	Positive Data Channel 0
4	GND	Ground
5	VCC	+5V
6	-Data 1	Negative Data Channel 1
7	+Data 1	Positive Data Channel 1
8	GND	Ground

Serial Port Connector: COM A

This mainboard offers one 9-pin male DIN connector as serial port COM A. It is a 16550A high speed communication port that sends/receives 16 bytes FIFOs. You can attach a serial mouse or other serial devices directly to the connector.



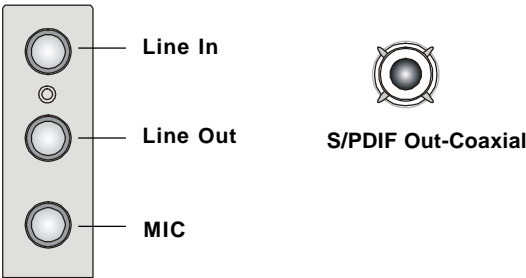
9-Pin Male DIN Connector

Pin Definition

PIN	SIGNAL	DESCRIPTION
1	DCD	Data Carry Detect
2	SIN	Serial In or Receive Data
3	SOUT	Serial Out or Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicate

Audio Port Connectors

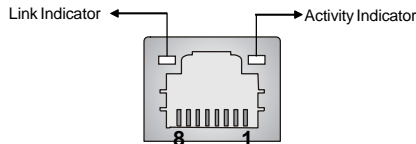
Line Out is a connector for Speakers or Headphones. **Line In** is used for external CD player, Tape player, or other audio devices. **Mic** is a connector for microphones. **SPDIF-out** is a jack for coaxial fiber connection for digital audio transmission.



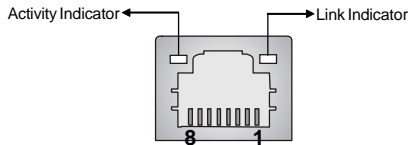
MSI Reminds You...
*For advanced audio application, VIA VT1617 audio chip is provided to offer support for **6-channel audio operation** and can turn rear audio connectors from 2-channel to 4-/6-channel audio.*

RJ-45 LAN Jack: Giga-bit LAN (VT6122) / 10/100 LAN (VT6103L) (Optional)

The mainboard provides two standard RJ-45 jacks for connection to Local Area Network (LAN). Giga-bit LAN enables data to be transferred at 1000, 100 or 10Mbps. You can connect a network cable to either LAN jack.



For 10/100 LAN Jack



For Giga-bit LAN Jack

The pin assignments vary depending on the transfer rates: 10/100Mbps or 1000Mbps. Note that Pin 1/2, 3/6, 4/5, 7/8 must work in pairs. Please refer to the following for details:

10/100 LAN Pin Definition

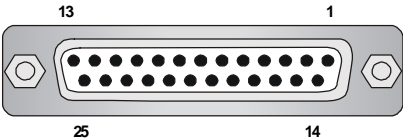
PIN	SIGNAL	DESCRIPTION
1	TDP	Transmit Differential Pair
2	TDN	Transmit Differential Pair
3	RDP	Receive Differential Pair
4	NC	Not Used
5	NC	Not Used
6	RDN	Receive Differential Pair
7	NC	Not Used
8	NC	Not Used

Giga-bit LAN Pin Definition

PIN	SIGNAL	DESCRIPTION
1	D0P	Differential Pair 0+
2	D0N	Differential Pair 0-
3	D1P	Differential Pair 1+
4	D2P	Differential Pair 2+
5	D2N	Differential Pair 2-
6	D1N	Differential Pair 1-
7	D3P	Differential Pair 3+
8	D3N	Differential Pair 3-

Parallel Port Connector: LPT1

The mainboard provides a 25-pin female centronic connector as LPT. A parallel port is a standard printer port that supports Enhanced Parallel Port (EPP) and Extended Capabilities Parallel Port (ECP) mode.



Pin Definition

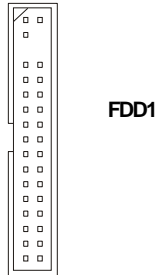
PIN	SIGNAL	DESCRIPTION
1	STROBE	Strobe
2	DATA0	Data0
3	DATA1	Data1
4	DATA2	Data2
5	DATA3	Data3
6	DATA4	Data4
7	DATA5	Data5
8	DATA6	Data6
9	DATA7	Data7
10	ACK#	Acknowledge
11	BUSY	Busy
12	PE	Paper End
13	SELECT	Select
14	AUTO FEED#	Automatic Feed
15	ERR#	Error
16	INIT#	Initialize Printer
17	SLIN#	Select In
18	GND	Ground
19	GND	Ground
20	GND	Ground
21	GND	Ground
22	GND	Ground
23	GND	Ground
24	GND	Ground
25	GND	Ground

Connectors

The mainboard provides connectors to connect to FDD, IDE HDD, case, LAN, USB Ports and CPU/System/NB FAN.

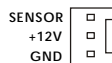
Floppy Disk Drive Connector: FDD1

The mainboard provides a standard floppy disk drive connector that supports 360K, 720K, 1.2M, 1.44M and 2.88M floppy disk types.

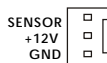


Fan Power Connectors: CFAN1 / SFAN1 / NBFAN1

The CFAN1 (processor fan), SFAN1 (system fan) and NBFAN1 (NorthBridge Chipset fan) support system cooling fan with +12V. It supports three-pin head connector. When connecting the wire to the connectors, always take note that the red wire is the positive and should be connected to the +12V, the black wire is Ground and should be connected to GND. If the mainboard has a System Hardware Monitor chipset on-board, you must use a specially designed fan with speed sensor to take advantage of the CPU fan control.



CFAN1



SFAN1



NBFAN1



MSI Reminds You...

1. Always consult the vendors for proper CPU cooling fan.
2. Please refer to the recommended CPU fans at AMD® official website.
3. CFAN1 supports the fan control. You can install **Core Center** utility that will automatically control the CPU fan speed according to the actual CPU temperature.

ATA133 Hard Disk Connectors: IDE1 & IDE2

The mainboard has a 32-bit Enhanced PCI IDE and Ultra DMA 66/100/133 controller that provides PIO mode 0~4, Bus Master, and Ultra DMA 66/100 /133 function. You can connect up to four hard disk drives, CD-ROM, 120MB Floppy (reserved for future BIOS) and other devices.



IDE1



IDE2

IDE1 (Primary IDE Connector)

The first hard drive should always be connected to IDE1. IDE1 can connect a Master and a Slave drive. You must configure second hard drive to Slave mode by setting the jumper accordingly.

IDE2 (Secondary IDE Connector)

IDE2 can also connect a Master and a Slave drive.



MSI Reminds You...

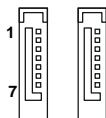
If you install two hard disks on cable, you must configure the second drive to Slave mode by setting its jumper. Refer to the hard disk documentation supplied by hard disk vendors for jumper setting instructions.

Serial ATA/Serial ATA RAID Connectors controlled by VIA VT8237: SATA1, SATA2 (Optional)

The Southbridge of this mainboard is VIA VT8237 which supports two serial connectors SATA1& SATA2.

SATA1 & SATA2 are dual high-speed Serial ATA interface ports. Each supports 1st generation serial ATA data rates of 150 MB/s. Both connectors are fully compliant with Serial ATA 1.0 specifications. Each Serial ATA connector can connect to 1 hard disk device. Please refer to the *Chapter 5: VIA VT8237 Serial ATA Raid Introduction* for detail software installation procedure.

SATA1 SATA2



SATA1~ SATA2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	TXP
3	TXN	4	GND
5	RXN	6	RXP
7	GND		

Serial ATA cable



Connect to serial ATA ports



Take out the dust cover and connect to the hard disk devices



MSI Reminds You...

Please do not fold the serial ATA cable in a 90-degree angle, which will cause the loss of data during the transmission.

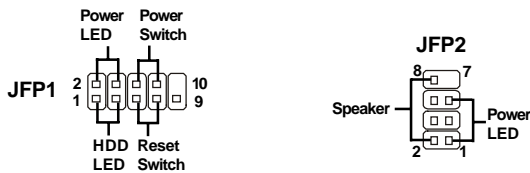
Chassis Intrusion Switch Connector: J1

This connector is connected to a 2-pin chassis switch. If the chassis is opened, the switch will be short. The system will record this status and show a warning message on the screen. To clear the warning, you must enter the BIOS utility and clear the record.



Front Panel Connectors: JFP1 & JFP2

The mainboard provides two front panel connectors for electrical connection to the front panel switches and LEDs. JFP1 is compliant with Intel® Front Panel I/O Connectivity Design Guide.



JFP1 Pin Definition

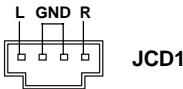
PIN	SIGNAL	DESCRIPTION
1	HD_LED_P	Hard disk LED pull-up
2	FP PWR/SLP	MSG LED pull-up
3	HD_LED_N	Hard disk active LED
4	FP PWR/SLP	MSG LED pull-up
5	RST_SW_N	Reset Switch low reference pull-down to GND
6	PWR_SW_P	Power Switch high reference pull-up
7	RST_SW_P	Reset Switch high reference pull-up
8	PWR_SW_N	Power Switch low reference pull-down to GND
9	RSVD_DNU	Reserved. Do not use.

JFP2 Pin Definition

PIN	SIGNAL	PIN	SIGNAL
1	GND	2	SPK-
3	SLED	4	BUZ+
5	PLED	6	BUZ-
7	NC	8	SPK+

CD-In Connector: JCD1

The connector is for CD-ROM audio connector.

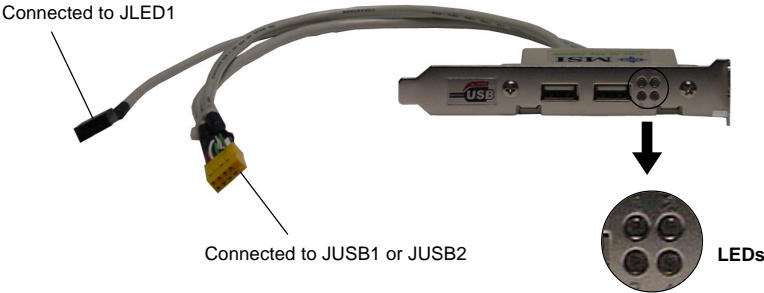
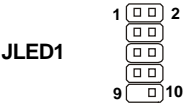


D-Bracket™ 2 Connector: JLED1

The mainboard comes with a JLED1 connector for you to connect to D-Bracket™ 2. D-Bracket™ 2 is a USB Bracket that supports both USB1.1 & 2.0 spec. It integrates four LEDs and allows users to identify system problem through 16 various combinations of LED signals.

JLED1 Pin Definition

Pin	Signal
1	DBG1 (high for green color)
2	DBR1 (high for red color)
3	DBG2 (high for green color)
4	DBR2 (high for red color)
5	DBG3 (high for green color)
6	DBR3 (high for red color)
7	DBG4 (high for green color)
8	DBR4 (high for red color)
9	Key (no pin)
10	NC



Front USB Connectors: JUSB1 & JUSB2

The mainboard provides two standard USB 2.0 pin headers *JUSB1* & *JUSB2*. USB 2.0 technology increases data transfer rate up to a maximum throughput of 480Mbps, which is 40 times faster than USB 1.1, and is ideal for connecting high-speed USB interface peripherals such as **USB HDD, digital cameras, MP3 players, printers, modems and the like.**

JUSB1 & JUSB2 Pin Definition

JUSB1 / JUSB2



PIN	SIGNAL	PIN	SIGNAL
1	VCC	2	VCC
3	USB0-	4	USB1-
5	USB0+	6	USB1+
7	GND	8	GND
9	Key (no pin)	10	USBOC

Front Panel Audio Connector: JAUD1

The JAUD1 front panel audio connector allows you to connect to the front panel audio and is compliant with Intel® Front Panel I/O Connectivity Design Guide.

JAUD1



JAUD1 Pin Definition

PIN	SIGNAL	DESCRIPTION
1	AUD_MIC	Front panel microphone input signal
2	AUD_GND	Ground used by analog audio circuits
3	AUD_MIC_BIAS	Microphone power
4	AUD_VCC	Filtered +5V used by analog audio circuits
5	AUD_FPOUT_R	Right channel audio signal to front panel
6	AUD_RET_R	Right channel audio signal return from front panel
7	HP_ON	Reserved for future use to control headphone amplifier
8	KEY	No pin
9	AUD_FPOUT_L	Left channel audio signal to front panel
10	AUD_RET_L	Left channel audio signal return from front panel



MSI Reminds You...

If you don't want to connect to the front audio header, pins 5 & 6, 9 & 10 have to be jumpered in order to have signal output directed to the rear audio ports. Otherwise, the Line-Out connector on the back panel will not function.

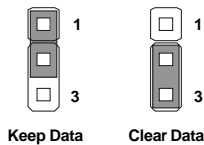


Jumper

The motherboard provides the following jumpers for you to set the computer's function. This section will explain how to change your motherboard's function through the use of jumpers.

Clear CMOS Jumper: JBAT1

There is a CMOS RAM on board that has a power supply from external battery to keep the data of system configuration. With the CMOS RAM, the system can automatically boot OS every time it is turned on. If you want to clear the system configuration, use the JBAT1 (Clear CMOS Jumper) to clear data. Follow the instructions below to clear the data:



MSI Reminds You...

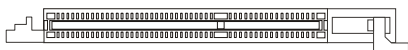
You can clear CMOS by shorting 2-3 pin while the system is off. Then return to 1-2 pin position. Avoid clearing the CMOS while the system is on; it will damage the mainboard.

Slots

The motherboard provides one AGP slot, and five 32-bit PCI bus slots.

AGP (Accelerated Graphics Port) Slot

The AGP slot allows you to insert the AGP graphics card. AGP is an interface specification designed for the throughput demands of 3D graphics. It introduces a 66MHz, 32-bit channel for the graphics controller to directly access main memory. The slot supports 8x/4x AGP card.

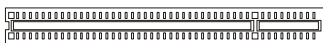


AGP Slot

PCI (Peripheral Component Interconnect) Slots

The PCI slots allow you to insert the expansion cards to meet your needs. When adding or removing expansion cards, make sure that you unplug the power supply first. Meanwhile, read the documentation for the expansion card to make any necessary hardware or software settings for the expansion card, such as jumpers, switches or BIOS configuration.

The orange PCI slot (PCI5) also works as a communication slot, which allows you to insert the communication card.



PCI Slots

PCI Interrupt Request Routing

The IRQ, acronym of interrupt request line and pronounced I-R-Q, are hardware lines over which devices can send interrupt signals to the microprocessor. The PCI IRQ pins are typically connected to the PCI bus INT A# ~ INT D# pins as follows:

	Order 1	Order 2	Order 3	Order 4
PCI Slot 1	INT A#	INT B#	INT C#	INT D#
PCI Slot 2	INT B#	INT C#	INT D#	INT A#
PCI Slot 3	INT D#	INT A#	INT B#	INT C#
PCI Slot 4	INT C#	INT D#	INT A#	INT B#
PCI Slot 5	INT B#	INT C#	INT D#	INT A#

BIOS Setup

This chapter provides information on the BIOS Setup program and allows you to configure the system for optimum use. You may need to run the Setup program when:

- ◆ An error message appears on the screen during the system booting up, and requests you to run SETUP.
- ◆ You want to change the default settings for customized features.



MSI Reminds You...

1. *The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.*
2. *While booting up, the BIOS version is shown in the 1st line appearing after the memory counting. It is usually in the format: example: W7005MS V2.0 091096*

where:

1st digit refers to BIOS maker as A=AMI(R); W=AWARD(R)

2nd - 5th digit refers to the model number.

6th - 7th digit refers to the customer, MS=all standard customers.

V2.0 refers to the BIOS version.

091096 refers to the date this BIOS is released.

Entering Setup

Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press key to enter Setup.

DEL: Setup F11: Boot Menu F12: Network boot TAB: Logo F10: Flash Recovery

If the message disappears before you respond and you still wish to enter Setup, restart the system by turning it OFF and On or pressing the RESET button. You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

Selecting the First Boot Device

You are allowed to select the 1st boot device without entering the BIOS setup utility by pressing <F11>. When the same message as listed above appears on the screen, press <F11> to trigger the boot menu.

The POST messages might pass by too quickly for you to respond in time. If so, restart the system and press <F11> after around 2 or 3 seconds to activate the boot menu similar to the following.

Select First Boot Device		
Floppy	: 1st Floppy	
IDE-0	: IBM-DTLA-307038	
CDROM	: ATAPI CD-ROM DRIVE 40X M	
[Up/Dn] Select	[RETURN] Boot	[ESC] cancel

The boot menu will list all the bootable devices. Select the one you want to boot from by using arrow keys and then pressing <Enter>. The system will boot from the selected device. The selection will not make changes to the settings in the BIOS setup utility, so next time when you power on the system, it will still use the original first boot device to boot up.

Control Keys

<↑>	Move to the previous item
<↓>	Move to the next item
<←>	Move to the item in the left hand
<→>	Move to the item in the right hand
<Enter>	Select the item
<Esc>	Jumps to the Exit menu or returns to the main menu from a submenu
<+/PU>	Increase the numeric value or make changes
<-/PD>	Decrease the numeric value or make changes
<F6>	Load Optimized Defaults
<F7>	Load Fail-Safe Defaults
<F10>	Save all the CMOS changes and exit

Getting Help

After entering the Setup utility, the first screen you see is the Main Menu.

Main Menu

The main menu displays the setup categories the BIOS supplies. You can use the arrow keys (↑↓) to select the item. The on-line description for the selected setup category is displayed at the bottom of the screen.

Default Settings

The preset Optimal Defaults of the BIOS setup program provide optimal performance settings for all devices and the system.

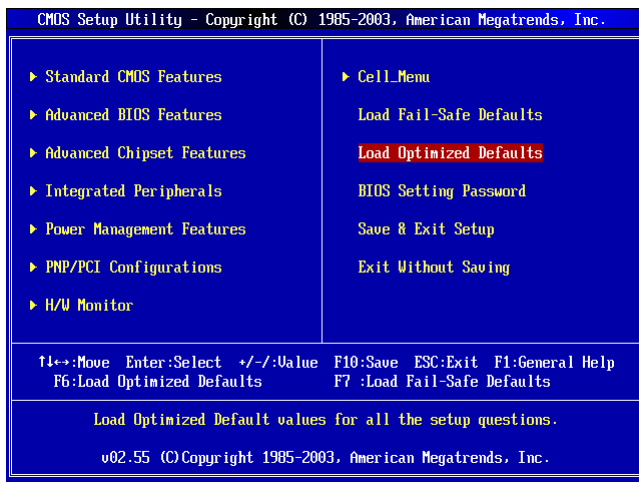


MSI Reminds You...

The items under each BIOS category described in this chapter are under continuous update for better system performance. Therefore, the description may be slightly different from the latest BIOS and should be held for reference only.

The Main Menu

Once you enter AMIBIOS NEW SETUP UTILITY, the Main Menu will appear on the screen. Use arrow keys to move among the items and press <Enter> to enter the sub-menu.



Standard CMOS Features

Use this menu for basic system configurations, such as time, date etc.

Advanced BIOS Features

Use this menu to setup the items of AMI® special enhanced features.

Advanced Chipset Features

Use this menu to change the values in the chipset registers and optimize your system's performance.

Integrated Peripherals

Use this menu to specify your settings for integrated peripherals.

Power Management Features

Use this menu to specify your settings for power management.

PNP/PCI Configurations

This entry appears if your system supports PnP/PCI.

H/W/ Monitor

This entry shows the status of your CPU, fan, warning for overall system status.

Cell_Menu

Use this menu to specify your settings for frequency/voltage control.

Load Fail-Safe Defaults

Use this menu to load the default values set by the BIOS vendor for stable system performance.

Load Optimized Defaults

Use this menu to load the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard.

BIOS Setting Password

Use this menu to set the password for BIOS.

Save & Exit Setup

Save changes to CMOS and exit setup.

Exit Without Saving

Abandon all changes and exit setup.

Standard CMOS Features

The items in Standard CMOS Features Menu includes some basic setup items. Use the arrow keys to highlight the item and then use the <PgUp> or <PgDn> keys to select the value you want in each item.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.		
Standard CMOS Features		
Date (MM:DD:YY) :	[Tue 01/01/2002]	Help Item
Time (HH:MM:SS) :	[17:37:23]	
▶ Primary IDE Master	[ST320414A]	
▶ Primary IDE Slave	[Not Detected]	
▶ Secondary IDE Master	[Not Detected]	
▶ Secondary IDE Slave	[ATAPI-CD ROM-DRIVE]52MA	
▶ Third IDE Master	[Not Detected]	
▶ Third IDE Slave	[Not Detected]	
▶ Fourth IDE Master	[Not Detected]	
▶ Fourth IDE Slave	[Not Detected]	
Floppy A	[1.44 MB 3½"]	
Floppy B	[Disabled]	
Halt on	[All, But Keyboard]	
▶ System Information	[Press Enter]	
↑←→:Move Enter:Select +/=:Value F10:Save ESC:Exit F1:General Help F6:Load Optimized Defaults F7 :Load Fail-Safe Defaults		

Date (MM:DD:YY)

This allows you to set the system to the date that you want (usually the current date). The format is <day> <month> <date> <year>.

- day** Day of the week, from Sun to Sat, determined by BIOS. Read only.
- month** The month from Jan. through Dec.
- date** The date from 1 to 31 can be keyed by numeric function keys.
- year** The year can be adjusted by users.

Time (HH:MM:SS)

This allows you to set the system time that you want (usually the current time). The time format is <hour> <minute> <second>.

Primary/Secondary/Third/Fourth IDE Master/Slave

Press PgUp/<+> or PgDn/<-> to select the hard disk drive type. The specification of hard disk drive will show up on the right hand according to your selection. Press <Enter> to for the sub-menu of each item:

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.		
Primary IDE Master		
Primary IDE Master		Help Item
Device	:Hard Disk	Disabled: Disables LBA Mode. Auto: Enables LBA Mode if the device supports it and the device is not already formatted with LBA Mode.
Vendor	:ST320414A	
Size	:20.0GB	
LBA/Large Mode	[Auto]	
DMA Mode	[Auto]	
Hard Disk S.M.A.R.T.	[Disabled]	

Device/Vendor/Size

These 3 items show the information about the specified item. Read-only.

LBA/Large Mode

This item allows you to enable or disable the LBA (Logical Block Address, the logical block size in hard disk) mode. Setting options: [Auto], [Disabled].

DMA Mode

This item allows you to enable or disable the DMA (Direct Memory Access) mode. Setting options: [Auto], [Disabled], [UDMA0], [UDMA1], [UDMA2], [UDMA3], [UDMA4], [UDMA5].

Hard Disk S.M.A.R.T.

This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline. Settings: [Auto], [Enabled], [Disabled].

Floppy A/B

These items allow you to set the type of the floppy drives installed. Available options: [Disabled], [360K, 5.25 in.], [1.2M, 5.25 in.], [720K, 3.5 in.], [1.44M, 3.5 in.], [2.88M, 3.5 in.].

Halt On

The setting determines whether the system will stop if an error is detected at boot. Available options are:

[No Errors]	The system doesn't stop for any detected error.
[All, But Keyboard]	The system doesn't stop for a keyboard error.

System Information

Press <Enter> to for the sub-menu of each item:

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.		
System Information		
Total Memory	512MB	Help Item
BIOS Version	01.007	
** CPU Information **		
<hr/>		
AMD Athlon(tm) XP 2100+		
CPU ID	0680h	
CPU Frequency	1.73GHz (133x13)	

Total Memory/BIOS Version

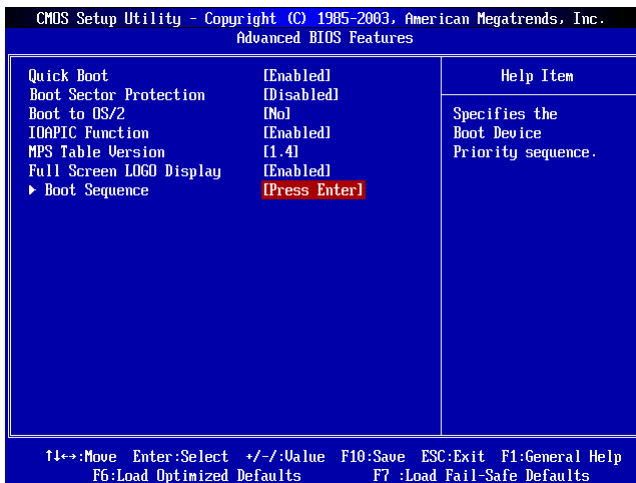
This item shows the memory status and BIOS version of your system (read only).

CPU Information

AMD Athlon(tm)/CPU ID/CPU Frequency

The three items show the CPU related information of your system (read only).

Advanced BIOS Features



Quick Boot

Setting the item to [Enabled] allows the system to boot within 5 seconds since it will skip some check items. Available options: [Enabled], [Disabled].

Boot Sector Protection

This function protects the BIOS from accidental corruption by unauthorized users or computer viruses. When enabled, the BIOS' data cannot be changed when attempting to update the BIOS with a Flash utility. To successfully update the BIOS, you'll need to disable this Flash BIOS Protection function.

You should enable this function at all times. The only time when you need to disable it is when you want to update the BIOS. After updating the BIOS, you should immediately re-enable it to protect it against viruses. Setting options: [Enabled], [Disabled].

Boot to OS/2

This allows you to run the OS/2® operating system with DRAM greater than 64MB. Setting options: [Yes], [No].

IOAPIC Function

This field is used to enable or disable the APIC (Advanced Programmable Interrupt Controller). Due to compliance with PC2001 design guide, the system is able to run in APIC mode. Enabling APIC mode will expand available IRQ resources for the system. Settings: [Enabled], [Disabled].

MPS Table Version

This field allows you to select which MPS (Multi-Processor Specification) version to be used for the operating system. You need to select the MPS version supported by your operating system. To find out which version to use, consult the vendor of your operating system. Settings: [1.4], [1.1].

Full Screen LOGO Display

This item enables you to show the company logo on the bootup screen. Settings are:

[Enabled] Shows a still image (logo) on the full screen at boot.

[Disabled] Shows the POST messages at boot.

Boot Sequence

Press <Enter> and the following sub-menu appears.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.		
Boot Sequence		
1st Boot Device	[1st FLOPPY DRIVE]	Help Item
2nd Boot Device	[HDD:PM-ST320414A]	
3rd Boot Device	[CD/DVD:SS-ATAPI-CD]	
Boot From Other Device	[Yes]	Specifies the boot sequence from the available devices

1st/2nd/3rd Boot Device

These items allow you to set the sequence of boot devices where AMIBIOS attempts to load the operating system.



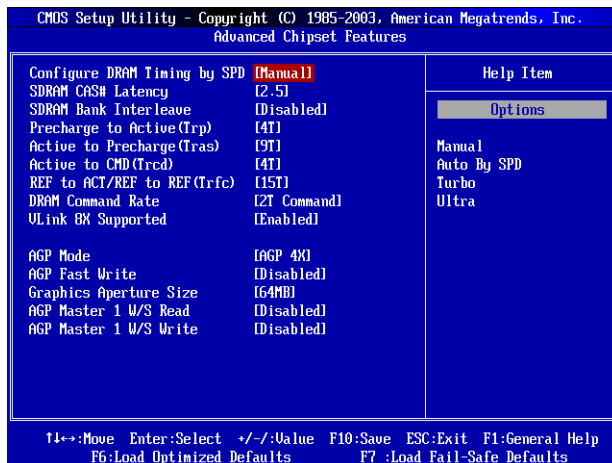
MSI Reminds You...

Available settings for "1st/2nd/3rd Boot Device" vary depending on the bootable devices you have installed. For example, if you did not install a floppy drive, the setting "Floppy" does not show up.

Boot From Other Devices

Setting the option to [Yes] allows the system to try to boot from other devices if the system fails to boot from the 1st/2nd/3rd boot device. Settings are: [Yes], [No].

Advanced Chipset Features



MSI Reminds You...

Change these settings only if you are familiar with the chipset.

Configure DRAM Timing by SPD

Selects whether DRAM timing is controlled by the SPD (Serial Presence Detect) EEPROM on the DRAM module. Setting to [Auto By SPD] enables DRAM timings and the following related items to be determined by BIOS based on the configurations on the SPD. Selecting [Manual] allows users to configure the DRAM timings and the following related items manually. Setting options: [Manual], [Auto By SPD], [Turbo], [Ultra].

SDRAM CAS# Latency

This controls the timing delay (in clock cycles) before SDRAM starts a read command after receiving it. Settings: [1.5], [2.0], [2.5], [3.0]. [1.5] increases the system performance the most while [3.0] provides the most stable performance.

SDRAM Bank Interleave

This field selects 2-bank or 4-bank interleave for the installed SDRAM. Disable the function if 16MB SDRAM is installed. Settings: [Disabled], [2-Way] and [4-Way].

Precharge to Active (Trp)

This setting controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refresh may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system. Setting options: [2T], [3T], [4T], [5T].

Active to Precharge (Tras)

This item controls the number of cycles for Row Address Strobe (RAS) to be allowed

to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refresh may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system. Available settings: [6T], [7T], [8T], [9T].

Active to CMD (Trcd)

When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe). The less the clock cycles, the faster the DRAM performance. Settings: [2T], [3T], [4T], [5T].

REF to ACT / REF to REF (Trfc)

This setting determines the time RFC takes to read from and write to a memory cell. Setting options: [12T], [13T], [14T], [15T].

DRAM Command Rate

This setting controls the DRAM command rate. Select [1T Command] allows DRAM singal controller to run at 1T (T=clock cycles) rate. Select [2T Command] makes DRAM siganl controller run at 2T rate. [1T] is faster than [2T]. Setting options: [1T Command], [2T Command].

VLink 8X Supported

This item enables or disables the 8X VLink Data Rate. Setting options: [Enabled], [Disabled].

AGP Mode

The item sets an appropriate mode for the installed AGP card. Setting options: [AGP 4x], [AGP 8x].

AGP Fast Write

This option enables or disables the AGP Fast Write feature. The Fast Write technology allows the CPU to write directly to the graphics card without passing anything through the system memory and improves the AGP 4X speed. Select [Enabled] only when the installed AGP card supports this function. Settings: [Enabled], [Disabled].

Graphics Aperture Size

This setting controls just how much system RAM can be allocated to AGP for video purposes. The aperture is a portion of the PCI memory address range dedicated to graphics memory address space. Host cycles that hit the aperture range are forwarded to the AGP without any translation. The option allows the selection of an aperture size of [4MB], [8MB], [16MB], [32MB], [64MB], [128MB], and [256 MB].

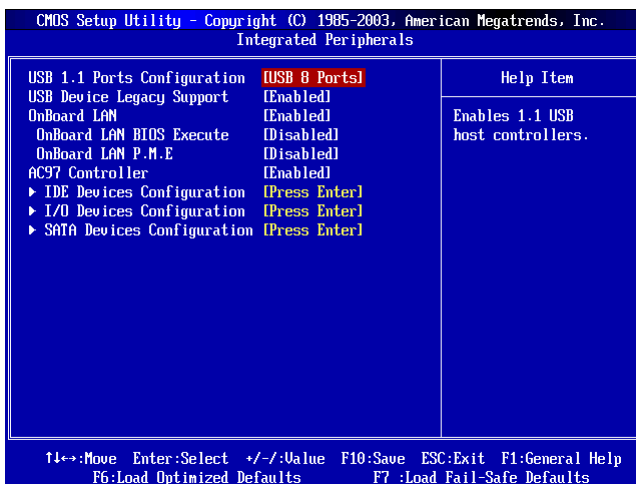
AGP Master 1 W/S Read

When [Enabled] is selected, one wait state is inserted in the AGP read cycle. Setting options: [Enabled], [Disabled].

AGP Master 1 W/S Write

When [Enabled] is selected, writes to the AGP bus are executed with one wait state inserted. Setting options: [Enabled], [Disabled].

Integrated Peripherals



USB 1.1 Ports Configuration

This setting is used to enable/disable the onboard USB ports. Setting options: [Disabled], [USB 2 Ports], [USB 4 Ports], [USB 6 Ports], [USB 8 Ports].

USB Device Legacy Support

Set to [Enabled] if you need to use any USB 1.1/2.0 device in the operating system that does not support or have any USB 1.1/2.0 driver installed, such as DOS and SCO Unix. Set to [Disabled] only if you want to use any USB device other than the USB mouse. Setting options: [Disabled], [Enabled], [Auto].

Onboard LAN

The item enables or disables the onboard LAN controller. Setting options: [Enabled], [Disabled].

Onboard LAN BIOS Execute

This item enables or disables the initialization of the onboard LAN Boot ROMs during bootup. Selecting [Disabled] will speed up the boot process. Setting options: [Disabled], [Enabled].

OnBoard LAN P.M.E.

This setting is used to enable/disable the onboard LAN PME (Power Management Event). Setting options: [Enabled], [Disabled].

AC'97 Controller

This item is used to enable or disable the onboard AC'97 (Audio Codec'97) feature. Selecting [Enabled] allows the mainboard to enable the onboard AC'97 controller. Disable the function if you want to use other controller cards to connect an audio device. Settings: [Disabled] and [Enabled].

IDE Devices Configuration

Press <Enter> to enter the sub-menu and the following screen appears:

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.		
IDE Devices Configuration		
On-Chip IDE Controller	[Both]	Help Item
PCI IDE BusMaster	[Disabled]	DISABLED: disables the

On-Chip IDE Controller

The integrated peripheral controller contains a IDE interface with support for two IDE channels. Select [Disabled] to disable the integrated IDE controller, [Primary] to enable only the primary IDE controller, [Secondary] to enable only the secondary IDE controller, or [Both] to enable both IDE controllers. Setting options: [Disabled], [Primary], [Secondary], [Both].

PCI IDE BusMaster

Set this option to [Enabled] to specify that the IDE controller on the PCI local bus has bus mastering capability. Settings options: [Disabled], [Enabled].

I/O Devices Configuration

Press <Enter> to enter the sub-menu and the following screen appears:

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.		
I/O Devices Configuration		
OnBoard Floppy Controller	[Enabled]	Help Item
COM Port 1	[3F8/IRQ4]	Allows BIOS to Enable or Disable Floppy Controller.
Parallel Port	[378]	
Parallel Port Mode	[Normal]	
Parallel Port IRQ	[IRQ7]	

OnBoard Floppy Controller

Select [Enabled] if your system has a floppy disk controller (FDC) installed on the system board and you wish to use it.

Option	Description
[Enabled]	Enables the onboard Floppy controller.
[Disabled]	Disables the onboard Floppy controller.

COM Port 1

This item specifies the base I/O port addresses of the onboard Serial Port 1 (COM 1). Selecting [Auto] allows AMIBIOS to automatically determine the correct base I/O port address. Settings: [3F8/IRQ4], [2F8/IRQ3], [3E8/IRQ4], [2E8/IRQ3] and [Disabled].

Parallel Port

This field specifies the base I/O port address of the onboard parallel port. Selecting [Auto] allows AMIBIOS to automatically determine the correct base I/O port address. Settings: [378], [278], [3BC] and [Disabled].

Parallel Port Mode

This item selects the operation mode for the onboard parallel port: [ECP], [Normal], [Bi-Dir] or [EPP].

Parallel Port IRQ

This item allows you to set parallel port IRQ. Setting options: [IRQ5], [IRQ7].

SATA Devices Configuration

Press <Enter> to enter the sub-menu and the following screen appears:

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.		
SATA Devices Configuration		
OnBoard SATA-IDE	[RAID]	Help Item
RAID BIOS Execute	[Enabled]	Options

OnBoard SATA-IDE

Select [Disabled] if you want to disable the SATA function. Select [SATA] to enable the Serial-ATA IDE controller, or select [RAID] to enable the Serial-ATA RAID function. Setting options: [Disabled], [SATA], [RAID].

RAID BIOS Execute

This item enables or disables the initialization of the onboard RAID ROMs. Setting options: [Enabled], [Disabled].

Power Management Features



MSI Reminds You...

S3-related functions described in this section are available only when your BIOS supports S3 sleep mode.

ACPI Standby State

This item specifies the power saving modes for ACPI function. If your operating system supports ACPI, such as Windows 98SE, Windows ME, Windows 2000 and Windows XP, you can choose to enter the Standby mode in S1 (POS) or S3 (STR) fashion through the setting of this field. Options are:

- [S1/POS] The S1 sleep mode is a low power state. In this state, no system context is lost (CPU or chipset) and hardware maintains all system context.
- [S3/STR] The S3 sleep mode is a lower power state where the information of system configuration and open applications/files is saved to main memory that remains powered while most other hardware components turn off to save energy. The information stored in memory will be used to restore the system when a "wake up" event occurs.
- [Auto] BIOS determines the best automatically.

Re-Call VGA BIOS from S3

Selecting [Enabled] allows BIOS to call VGA BIOS to initialize the VGA card when system wakes up (resumes) from S3 sleep state. The system resume time is shortened when you disable the function, but system will need an AGP driver to initialize the VGA card. Therefore, if the AGP driver of the card does not support the initialization feature, the display may work abnormally or not function after resuming from S3.

Suspend Time Out (Minute)

If system activity is not detected for the length of time specified in this field, all devices except CPU will be shut off. Settings: [Disabled], [1], [2], [4], [8], [10], [20], [30], [40], [50], [60].

Power Button Function

This feature allows users to configure the Power Button function. Settings are:

- [Power Off] The power button functions as a normal power-on/-off button.
- [Suspend] When you press the power button, the computer enters the suspend/sleep mode, but if the button is pressed for more than four seconds, the computer is turned off.

Restore on AC/Power Loss

This setting specifies whether your system will reboot after a power failure or interrupt occurs. Available settings are:

- [Off] Leaves the computer in the power off state.
- [On] Leaves the computer in the power on state.
- [Last State] Restores the system to the previous status before power failure or interrupt occurred.

Wakeup Event Setup

Press <Enter> and the following sub-menu appears.

CMOS Setup Utility - Copyright (C) 1985-2004, American Megatrends, Inc.		
Wakeup Event Setup		
Resume From S3 by USB Device	[Disabled]	Help Item
Resume On KBC	[Disabled]	
Wake-Up Key	[Any Key]	Options
Resume On PS/2 Mouse	[Disabled]	
Resume by PCI Device (PME#)	[Disabled]	Disabled
Resume by RTC Alarm	[Disabled]	Enabled

Resume From S3 by USB Device

The item allows the activity of the USB device to wake up the system from S3 (Suspend to RAM) sleep state. Setting options: [Disabled], [Enabled].

Resume On KBC

The item specifies how the system will be awakened from power saving mode when input signal of the keyboard is detected. Setting options: [Disabled], [S3].

Wake-Up Key

This setting only works **Resume On KBC** is set to [Enabled]. This setting specifies how the system will be awakened from power saving mode when input signal of the keyboard is detected. Setting options: [Any Key], [Specific Key].

Resume On PS/2 Mouse

The setting determines whether the system will be awakened from what power saving modes when input signal of the PS/2 mouse is detected. Setting options: [Disabled], [S3].

Resume by PCI Device (PME#)

When setting to [Enabled], this setting allows your system to be awakened from the power saving modes through any event on PME (Power Management Event). Setting options: [Disabled], [Enabled].

Resume On RTC Alarm

This is used to enable or disable the feature of booting up the system on a scheduled time/date from the S3, S4, and S5 state. Setting options: [Disabled], [Enabled].

Date/Time (HH:MM:SS)

If **Resume By RTC Alarm** is set to [Enabled], the system will automatically resume (boot up) on a specific date/hour/minute/second specified in these fields (using the <+> and <-> to select the date & time settings). Available settings for each item are:

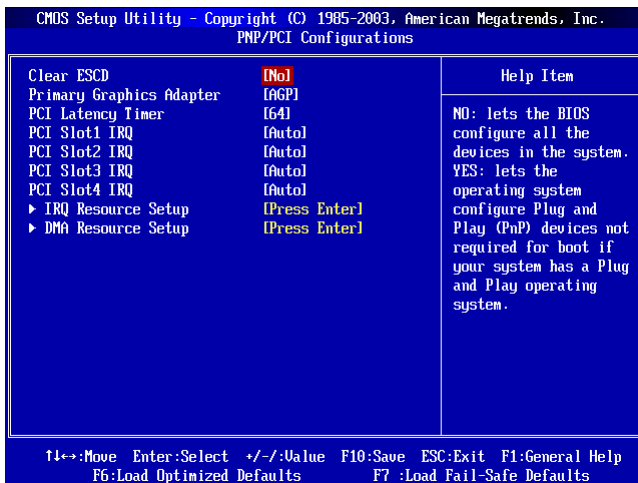
Date	01 ~ 31, Every Day
Time (HH:MM:SS)	00 ~ 23 : 00 ~ 59 : 00 ~ 59

**MSI Reminds You...**

If you have changed this setting, you must let the system boot up until it enters the operating system, before this function will work.

PNP/PCI Configurations

This section describes configuring the PCI bus system and PnP (Plug & Play) feature. PCI, or **P**eripheral **C**omponent **I**nterconnect, is a system which allows I/O devices to operate at speeds nearing the speed the CPU itself uses when communicating with its special components. This section covers some very technical items and it is strongly recommended that only experienced users should make any changes to the default settings.



Clear ESCD

The ESCD (Extended System Configuration Data) NVRAM (Non-volatile Random Access Memory) is where the BIOS stores resource information for both PNP and non-PNP devices in a bit string format. When the item is set to [Yes], the system will reset ESCD NVRAM right after the system is booted up and then set the setting of the item back to [No] automatically.

Primary Graphics Adapter

This setting specifies which VGA card is your primary graphics adapter. Setting options are:

- [AGP] The system initializes the installed AGP card first. If an AGP card is not available, it will initialize the PCI VGA card.
- [PCI] The system initializes the installed PCI VGA card first. If a PCI VGA card is not available, it will initialize the AGP card.

PCI Latency Timer

This item controls how long each PCI device can hold the bus before another takes over. When set to higher values, every PCI device can conduct transactions for a longer time and thus improve the effective PCI bandwidth. For better PCI performance, you should set the item to higher values. Setting options: [32], [64], [96], [128], [160], [192], [224], [248].

PCI Slot1 IRQ, PCI Slot2 IRQ, PCI Slot3 IRQ, PCI Slot4 IRQ

These items specify the IRQ line for each PCI slot. Setting options: [3], [4], [5], [7], [9], [10], [11], [12], [14], [15], [Auto]. Selecting [Auto] allows BIOS to automatically determine the IRQ line for each PCI slot.

IRQ Resource Setup

Press <Enter> and the following sub-menu appears.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.		
DMA Resource Setup		
DMA Channel 0	[Available]	Help Item
DMA Channel 1	[Available]	Options Available Reserved
DMA Channel 3	[Available]	
DMA Channel 5	[Available]	
DMA Channel 6	[Available]	
DMA Channel 7	[Available]	

IRQ 3/4/5/7/9/10/11/14/15

These items specify the bus where the specified IRQ line is used.

The settings determine if AMIBIOS should remove an IRQ from the pool of available IRQs passed to devices that are configurable by the system BIOS. The available IRQ pool is determined by reading the ESCD NVRAM. If more IRQs must be removed from the IRQ pool, the end user can use these settings to reserve the IRQ by assigning an [Reserved] setting to it. Onboard I/O is configured by AMIBIOS. All IRQs used by onboard I/O are configured as [Available]. If all IRQs are set to [Reserved], and IRQ 14/15 are allocated to the onboard PCI IDE, IRQ 9 will still be available for PCI and PnP devices. Available settings: [Reserved] and [Available].

DMA Resource Setup

Press <Enter> and the following sub-menu appears.

CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.		
IRQ Resource Setup		
IRQ3	[Available]	Help Item
IRQ4	[Available]	Options Available Reserved
IRQ5	[Available]	
IRQ7	[Available]	
IRQ9	[Available]	
IRQ10	[Available]	
IRQ11	[Available]	
IRQ14	[Available]	
IRQ15	[Available]	

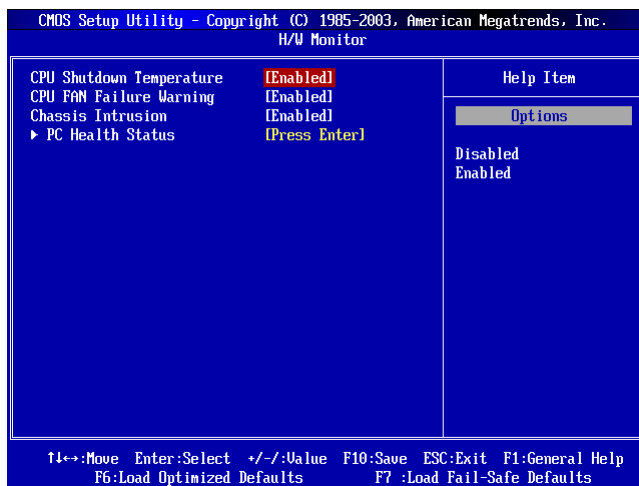
DMA Channel 0/1/3/5/6/7

These items specify the bus that the system DMA (Direct Memory Access) channel is used.

The settings determine if AMIBIOS should remove a DMA from the available DMAs passed to devices that are configurable by the system BIOS. The available DMA pool is determined by reading the ESCD NVRAM. If more DMAs must be removed from the pool, the end user can reserve the DMA by assigning an [Reserved] setting to it.

H/W Monitor

This section shows the status of your CPU, fan, overall system status, etc. Monitor function is available only if there is hardware monitoring mechanism onboard.



CPU Shutdown Temperature

If the CPU temperature reaches the upper limit preset in this setting, the system will be shut down automatically. This helps you to prevent the CPU overheating problem. This item is available only when your OS supports this function, such as Windows ME/XP. Setting options: [Enabled], [Disabled].

CPU Fan Failure Warning

When enabled, the system will automatically monitor the CPU fan during boot-up. If it detects that the CPU fan is not rotating, the system will show an error message on the screen and halt the boot-up process. The function is **built with CPU fan power connector (CFAN1) only** and enables you to protect the CPU from possible overheating problem. If you don't connect the CPU fan to the CPU fan power connector, we recommend disabling the feature. Settings: [Enabled], [Disabled].

Chassis Intrusion

The field enables or disables the feature of recording the chassis intrusion status and issuing a warning message if the chassis is once opened. This item is available only when your mainboard has JASE1 jumper. To clear the warning message, set the field to [Reset]. The setting of the field will automatically return to [Enabled] later. Settings: [Enabled], [Reset], [Disabled].

PC Health Status

Press <Enter> and the following sub-menu appears.

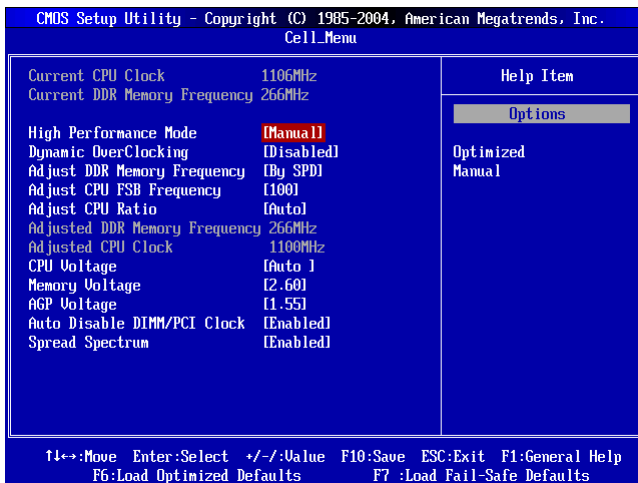
CMOS Setup Utility - Copyright (C) 1985-2003, American Megatrends, Inc.		
PC Health Status		
CPU Temperature	: 49°C/120°F	Help Item
System Temperature	: 21°C/69°F	
CPU FAN Speed	: 5000 RPM	
SYSTEM FAN Speed	: 3341 RPM	
Vcore	: 1.596 V	
+3.3V	: 3.209 V	
+5.0V	: 5.067 V	
+12.0V	: 11.706 V	
-12.0V	: -11.882 V	
-5.0V	: 3.527 V	

CPU/System Temperature, CPU/System FAN Speed, Vcore, +3.3 V, +5.0 V, +12.0V, -12.0V, -5.0V

These items display the current status of all of the monitored hardware devices/ components such as CPU voltages, temperatures and all fans' speeds.

Cell Menu

The items in Cell Menu includes some important settings of CPU, AGP, DRAM and overclocking functions.



MSI Reminds You...

Change these settings only if you are familiar with the chipset.

Current CPU Clock, Current DDR Memory Frequency

These two items show the current clocks of CPU & DDR memory frequency. Read-only.

High Performance Mode

This field allows you to select the DDR timing setting. Setting to [Optimized] enables **Adjust DDR Memory Frequency** automatically to be determined by SPD. Selecting [Manual] allows users to configure these fields manually. Setting options: [Optimized], [Manual].

Dynamic OverClocking

Dynamic Overclocking Technology is the automatic overclocking function, included in the MSI™'s newly developed CoreCell™ Technology. It is designed to detect the load balance of CPU while running programs, and to adjust the best CPU frequency automatically. When the motherboard detects CPU is running programs, it will speed up CPU automatically to make the program run smoothly and faster. When the CPU is temporarily suspending or staying in the low load balance, it will restore the default settings instead. Usually the Dynamic Overclocking Technology will be powered only when users' PC need to run huge amount of data like 3D games or the video process, and the CPU frequency need to be boosted up to enhance the overall performance. Setting options:

[Disabled]	Disable Dynamic Overclocking function.
[Private]	1st level of overclocking, increasing the CPU frequency by 1%.
[Sergeant]	2nd level of overclocking, increasing the CPU frequency by 3%.
[Captain]	3rd level of overclocking, also the default value of "Load High Performance Defaults", increasing the CPU frequency by 5%.
[Colonel]	4th level of overclocking, increasing the CPU frequency by 7%.
[General]	5th level of overclocking, increasing the CPU frequency by 10%.
[Commander]	6th level of overclocking, increasing the CPU frequency by 15%.



MSI Reminds You...

1. *Even though the Dynamic Overclocking Technology is more stable than manual overclocking, basically, it is still risky. We suggest user to make sure that your CPU can afford to overclocking regularly first. If you find the PC appears to be unstable or reboot incidentally, it's better to disable the Dynamic Overclocking or to lower the level of overclocking options. By the way, if you need to conduct overclocking manually, you also need to disable the Dynamic OverClocking first.*
2. *Meanwhile, there are two functions to protect user's system from crash.*
 - *There is a safe key "Ins" in BIOS. In case the overclocking fails, you can press "Ins" key while system rebooting to restore to the BIOS defaults.*
 - *If the system incidentally reboot for four times, the BIOS will also be restored to the defaults.*

Adjust DDR Memory Frequency

When it is set to [Manual] in **High Performance Mode**, user can place an artificial memory clock limit on the system. Please note that memory is prevented from running faster than this frequency. Setting options: [200 MHz], [266 MHz], [333 MHz], [400 MHz], [By SPD].

CPU FSB Clock

This item allows you to select the CPU Front Side Bus clock frequency (in MHz) and overclock the processor by adjusting the FSB clock to a higher frequency. Select the number between [100]~[280] for needed frequency.

CPU Ratio Selection

This setting controls the multiplier that is used to determine the internal clock speed of the processor relative to the external or motherboard clock speed. It is available only when the processor supports this function.

CPU Voltage

The settings are used to adjust the CPU clock multiplier (ratio) and CPU corevoltage (Vcore). These settings offer users a tool to overclock the system.

Memory Voltage

Adjusting the DDR voltage can increase the DDR speed. Any changes made to this setting may cause a stability issue, so **changing the DDR voltage for long-term purpose is NOT recommended**.

AGP Voltage

AGP voltage is adjustable in the field, allowing you to increase the performance of your AGP display card when overclocking, but the stability may be affected.

Stop Unused PCI/DIMM Clock

This item enables or disables the PCI/DIMM slot clock. Setting options: [Disabled], [Enabled].

Spread Spectrum

When the motherboard's clock generator pulses, the extreme values (spikes) of the pulses creates EMI (Electromagnetic Interference). The **Spread Spectrum** function reduces the EMI generated by modulating the pulses so that the spikes of the pulses are reduced to flatter curves. If you do not have any EMI problem, leave the setting at [Disabled] for optimal system stability and performance. But if you are plagued by EMI, activate the **Spread Spectrum** for EMI reduction. Remember to disable Spread Spectrum if you are overclocking because even a slight jitter can introduce a temporary boost in clock speed which may just cause your overclocked processor to lock up. Options: [Disabled], [Enabled].



MSI Reminds You...

The settings shown in different color in CPU Voltage, Memory Voltage and AGP Voltage help to verify if your setting is proper for your system.

White: Safe setting.

Yellow: High performance setting.

Red: Not recommended setting and the system may be unstable.

*Changing CPU Voltage, Memory Voltage and AGP Voltage may result in the instability of the system; therefore, it is **NOT** recommended to change the default setting for long-term usage.*

BIOS Setting Password

When you select this function, a message as below will appear on the screen:



Type the password, up to six characters in length, and press <Enter>. The password typed now will replace any previously set password from CMOS memory. You will be prompted to confirm the password. Retype the password and press <Enter>. You may also press <Esc> to abort the selection and not enter a password.

To clear a set password, just press <Enter> when you are prompted to enter the password. A message will show up confirming the password will be disabled. Once the password is disabled, the system will boot and you can enter Setup without entering any password.

When a password has been set, you will be prompted to enter it every time you try to enter Setup. This prevents an unauthorized person from changing any part of your system configuration.

Additionally, when a password is enabled, you can also have AMIBIOS to request a password each time the system is booted. This would prevent unauthorized use of your computer. The setting to determine when the password prompt is required is the *Password Check* of the ADVANCED BIOS FEATURES menu. If the *Password Check* is set to *Always*, the password is required both at boot and at entry to Setup. If set to *Setup*, password prompt only occurs when you try to enter Setup.



MSI Reminds You...

About Supervisor Password & User Password:

Supervisor password: Can enter and change the settings of the Setup menu.

User password: Can only enter but do not have the right to change the settings of the setup menu.

Load Fail-Safe/Optimized Defaults

The two options on the main menu allow users to restore all of the BIOS settings to the default Fail-Safe or Optimized values. The Optimized Defaults are the default values set by the mainboard manufacturer specifically for optimal performance of the mainboard. The Fail-Safe Defaults are the default values set by the BIOS vendor for stable system performance.

When you select Load Fail-Safe Defaults, a message as below appears:



Pressing Y loads the BIOS default values for the most stable, minimal system performance.

When you select Load Optimized Defaults, a message as below appears:




Pressing Y loads the default factory settings for optimal system performance.



Introduction to DigiCell

DigiCell, the most useful and powerful utility that MSI has spent much research and efforts to develop, helps users to monitor and configure all the integrated peripherals of the system, such as audio program, power management, MP3 files management and communication / 802.11g WLAN settings. Moreover, with this unique utility, you will be able to activate the MSI well-known features, Live Update and Core Center, which makes it easier to update the BIOS/drivers online, and to monitor the system hardware status (CPU/Fan temperature and speed) or to overclock the CPU/memory.

Once you have your DigiCell installed, it will have an icon  in the system tray, a short cut icon on the desktop, and a short cut path in your "Start-up" menu. You may double-click on each icon to enable DigiCell.



short-cut icon in the system tray



short-cut path in the start-up menu
(path: Start-->Programs-->MSI-->DigiCell)

Main

Before using this utility, it is required to have all the integrated peripherals/cards (LAN card, Wireless LAN card, MegaStick... etc.) and all the necessary drivers (onboard LAN driver, audio driver, CoreCenter, Live Update... etc.) installed correctly.

The icon representing each item will be lit up if it is inserted/installed correctly and properly. Otherwise, the icon will remain gray and user is not able to check the functionality/connection of that item.

DigiCell is under continuous update to enhance its application, meanwhile the available functions may be different depending on individual model. Hence, the program screens shows here in this chapter may be slightly different from the latest utility and should be held for reference only.



Introduction:

Click on each icon appears above to enter the sub-menu to make further configuration.

MSI

Click on this button and to link to MSI website:
<http://www.msi.com.tw>.

Quick Guide

Click on this button and the quick guide of **DigiCell** will be displayed for you to review.

H/W Diagnostic

In this sub-menu, it provides the information of each DigiCell button for you to check if the representing peripherals/cards/drivers are correctly installed.

Comm.

In this sub-menu, you can see the configuration details for communication products, including the status, strength, speed and channel of the connection of the Ethernet LAN & Wireless LAN.

Software Access Point

In this sub-menu, you can change your connection mode to different ones, and configure the advanced settings for each mode, such as the authentication encryption... etc.

Live Update

You can take advantage of **Live Update** to detect and update BIOS and drivers online.

Core Center

You can take advantage of **Core Center** to monitor the health status of your system and to overclock under Windows OS if your system supports overclocking function.

MEGA STICK

If you have your MEGA STICK connected to your system, this icon will be lit up. Click this blue icon to turn DigiCell into a MP3 player, and then you can load media files from your MEGA STICK or the system, and edit the preferred playlist.

Audio Speaker Setting

In this sub-menu, you can configure and test the multi-channel audio function, speakers, sound effect and environment.

Power on Agent

In this sub-menu, you can configure date, time and auto-executed programs of the power-on, power-off and restarting features.

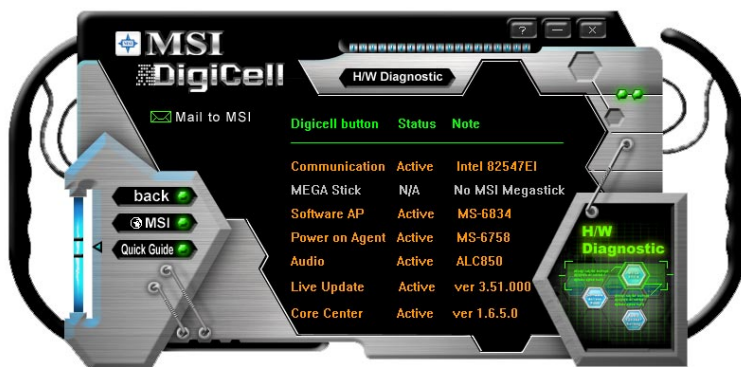


MSI Reminds You...

*Click on **back** button in every sub-menu and it will bring you back to the main menu.*

H/W Diagnostic

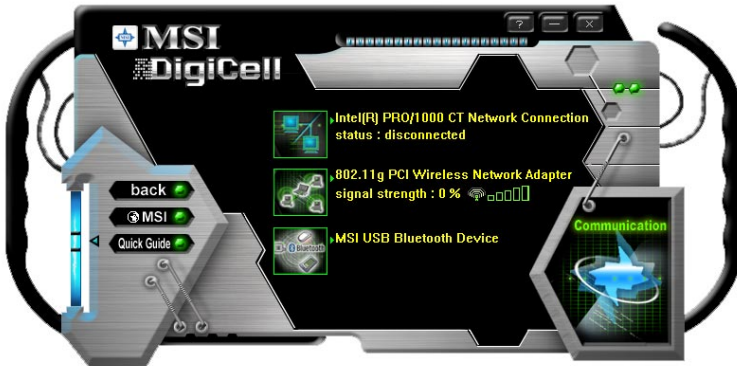
In the **H/W Diagnostic** sub-menu, you can see the information, status and note of each DigiCell. You can double check the connection and installation of the item marked as gray.



You may also click on the **Mail to MSI** button to send your questions or suggestions to MSI's technical support staff.

Communication

In the **Communication** sub-menu, you can see the status of all the LAN / WLAN / Bluetooth on the screen if the hardware is installed. The first icon indicates the onboard LAN on your system, the second icon indicates the wireless LAN status, and the third one is the information about the bluetooth on your system. Click on each item for details.



This icon indicates the information and connection status of onboard LAN, which is read-only.



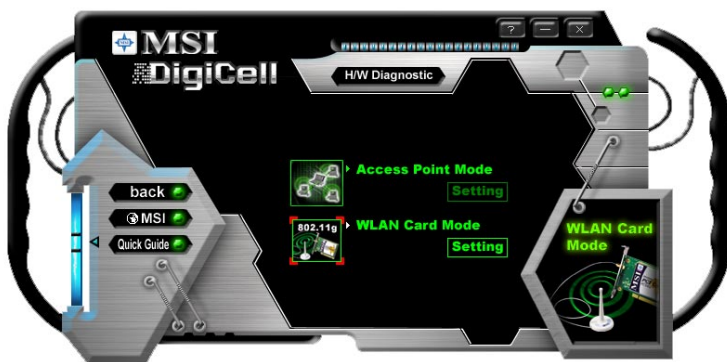
The second icon indicates the wireless connection. You may click this icon to configure the advanced settings in the **WLAN Card Mode** dialogue box (see the image on p.4-8). Please note that it is only available when the **Software Access Point** is set to **WLAN Card Mode**.



The third icon indicates the connection using bluetooth devices. If your system has connected to the bluetooth device, the icon will light up.

Software Access Point

In the **Software Access Point** sub-menu, you can see the status of communicating on your system and choose the desired software access point mode by clicking on the desired icon, in which the default settings are configured for your usage. The default software access point mode is set to **WLAN Card Mode**. For more advanced security settings and channels switching, click on “**Setting**” button to enter its sub-menu.



Terminology

Here are the introduction of WLAN / AP communication terminology.

WEP Key

In the wireless network environment, the administrator can set up password (Network Key) to protect the network from being attacked or unauthorized access. When building the network, you can set up 4 sets of WEP keys, which can be 5 characters (10 hex-adecimal digital) or 13 characters (26 hex-adecimal digital) and specify one of them to use.

Ad-hoc Mode

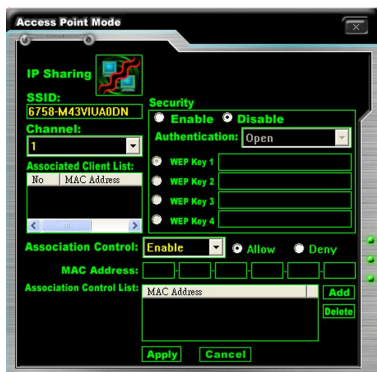
An Ad-hoc network is a local area network or other small network, especially one with wireless or temporary plug-in connections, in which some of the network devices are part of the network only for the duration of a communications session. Users in the network can share files, print to a shared printer, and access the Internet with a shared modem. In this kind of network, new devices can be quickly added; however, users can only communicate with other wireless LAN computers that are in this wireless LAN workgroup, and are within range.

Infrastructure Mode

The difference between Infrastructure network and Ad-hoc network is that the former one includes an Access Point. In an Infrastructure network, the Access Point can manage the bandwidth to maximize bandwidth utilization. Additionally, the Access Point enables users on a wireless LAN to access an existing wired network, allowing wireless users to take advantage of the wired networks resources, such as Internet, email, file transfer, and printer sharing. The scale and range of the Infrastructure networking are larger and wider than that of the Ad-hoc networking.

Access Point Mode

Click on “**Setting**” button of the **Access Point Mode** and the following screen will display.



IP Sharing

Click on this icon to enable/disable the IP sharing. The default of this setting is disabled.



Disabled.



Enabled.

Enabling/disabling IP sharing depends on the different situation. For example:

1. If your family and you are getting on Internet at home with multi computers, and your ISP only provides one IP for you, you may need to enable **IP Sharing** function in order to use this one IP to get on Internet with multi computers simultaneously.
2. If you are getting on Internet in office, usually the LAN card will automatically get the IP this computer uses. In this case you don't have to enable this function.

SSID

Means Service Set Identifier, a **unique** name shared among all points in a wireless network. It must be **identical** for all points in the network. Then the card will be able to connect to an access point with the same SSID.

Channel

Specifies the operating radio frequency channel in **Infrastructure mode**, which should be set to an available one (ex: with less traffic to ensure the stable and better connection).

Associated Client List

This option is to display information of stations that are currently associating to your wireless gateway.

Association Control

This option allows you to control which PC can connect to the wireless LAN. If you

enable this feature, only PCs with MAC address located in Association Control List can connect to the wireless LAN.

MAC Address

MAC stands for Media Access Control. A MAC address is the hardware address of a device connected to a network.

Security

This option allows you to enable/disable the authentication function.

Authentication

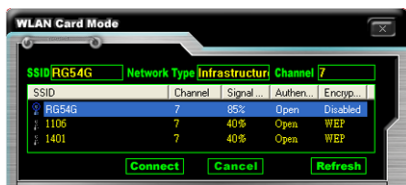
Open: Communicates the key across the network.

Shared: Devices must have identical WEP settings to communicate.

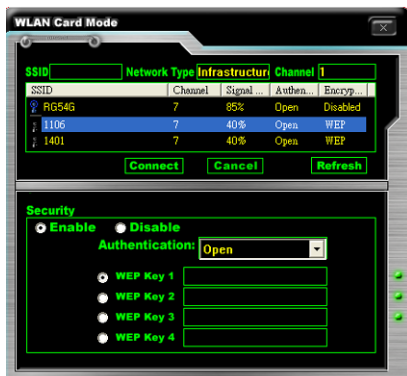
WLAN Card Mode

Click on “**Setting**” button of the **WLAN Card Mode** for the WEP status of your APs.

If the AP you are selecting (the highlighting one) is not encrypted (**Disabled** shown in the **Encryption** column), the screen will display as below. You can click “**Connect**” to make connection to that AP, click “**Cancel**” to close this dialogue box, or click “**Refresh**” button to update the available WLAN connections.



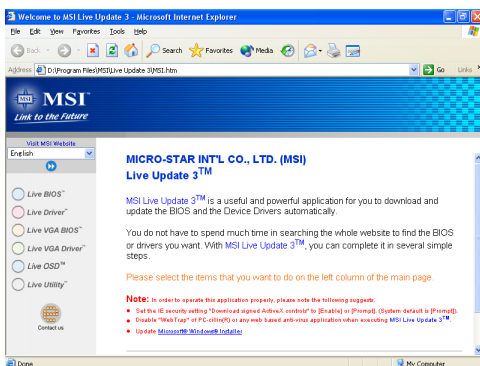
If the network you are selecting is encrypted (**WEP** shown in the **Encryption** column), the screen will display as below. You need to enter the correct WEP key defined by AP in the specified **WEP Key 1~4** fields to make the connection.



Live Update

Click on the **Live Update** icon in the main menu and the **Live Update** program will be enabled.

The Live Update 3™ is a tool used to detect and update your BIOS/drivers/VGA BIOS/VGA Driver/OSD/Utility online so that you don't need to search for the correct BIOS/driver version throughout the whole Web site. To use the function, you need to install the "MSI Live Update 3" application. After the installation, the "MSI Live Update 3" icon (as shown on the right) will appear on the screen. Double click the "MSI Live Update 3" icon, and the following screen will appear:



Five buttons are placed on the left column of the screen. Click the desired button to start the update process.

Live BIOS – Updates the BIOS online.

Live Driver – Updates the drivers online.

Live VGA BIOS – Updates the VGA BIOS online.

Live VGA Driver – Updates the VGA driver online.

Live OSD – Updates the firmware of the OSD products online.

Live Utility – Updates the utilities online.

If the product you purchased does not support any of the functions listed above, a "sorry" message is displayed. For more information on the update instructions, insert the companion CD and refer to the "Live Update Guide" under the "Manual" Tab.

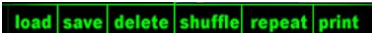
MEGA STICK

In the **MEGA STICK** sub-menu, you can configure the settings of MSI MEGA STICK and the media files (*.m3u, *.mp3, *.wav, *.cda, *.wma) on your system.



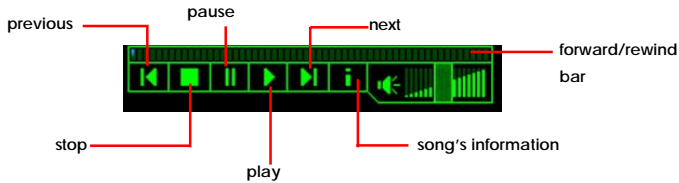
Basic Function

Here you can edit your own play list with the buttons “load”, “save”, “delete”, “shuffle”, “repeat” & “print”.



- Load** To load media files or the playlist of mp3 files (*.m3u) on your system or on your MEGA STICK.
- Save** To save a loaded playlist of mp3 files (*.m3u) on your system or on your MEGA STICK.
- Delete** Click on the media files in the **Play List:** field and use “Delete” button to remove the media file from the play list. You may remove multi media files simultaneously by using “Ctrl” to select multi files.
- Shuffle** To play the media file in the **Play List:** in a random order.
- Repeat** To repeat the selected files in the **Play List:**.
- Print** This button has 2 functions:
 1. To print out the details of current play list through your printer with the following information:
Song title --- Song length --- Singer name
 2. To save the details of current play list and save the file in the plain text file format in the \\Program files\\MSI\\DigiCell\\MyMusic.txt for your reference. The *MyMusic.txt* file is with the following information:
Song title --- Song length --- Singer name

There is also a toolbar for you to execute some basic function, like play, stop, pause, previous/next song, song info and volume adjusting. There is also a scroll bar on the top for you to forward/rewind.



Right-click on the MP3 file and choose “Info”, a **MP3 Info** dialogue will pop up to show the information of the file, including the title, artist, album, release year and others. You may also add your own comment in the **comment** field. Then click “**Save**” to save the change, click “**Cancel**” to discard the change, or click “**Remove**” to all this information.

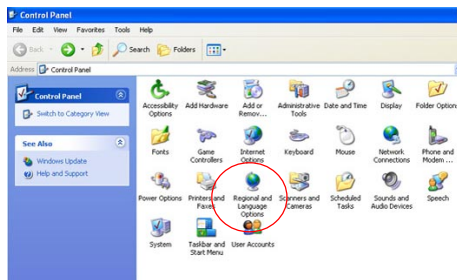


Non-Unicode programs supported

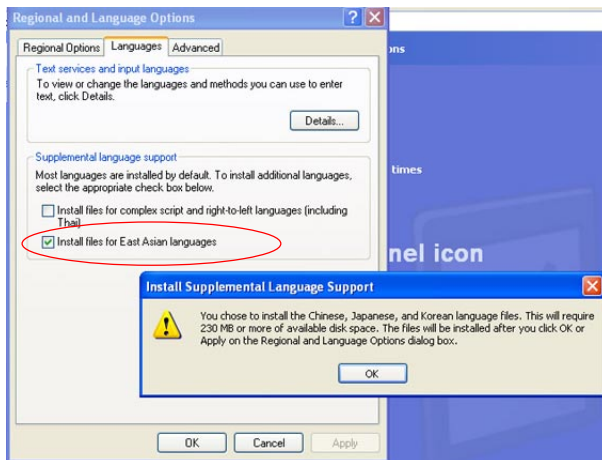
If you are using an operating system in European languages, and you'd like to play the media files in MEGA STICK with East-Asian languages (such as Chinese, Japanese... etc.), it is possible that the file names display incorrectly.

However, you can install the **Supplemental Language Support** provided by Microsoft to solve this problem. To run this solution, you need to have your Microsoft Setup CD prepared in the CD-ROM, therefore the system will start to install the necessary components after the settings are configured here. Follow the steps described below.

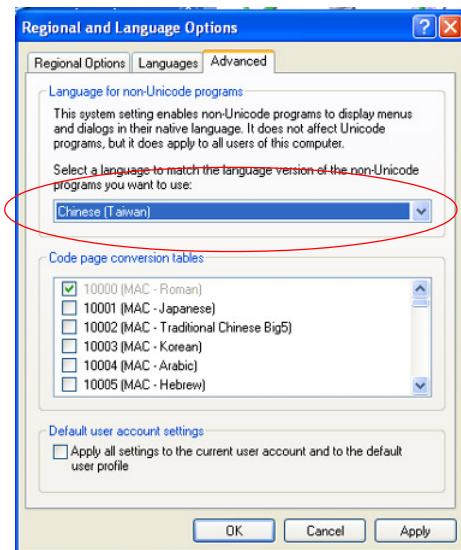
1. Go to [Control Panel] and choose [Regional and Languages Options].



2. Go to the [Languages] tab and enable the check box of [Install files for East Asian languages]. A dialogue box will pop up to remind you the above selection is chosen.



3. Then go to the [Advanced] tab and select **the language you want to be supported** (the language of the filename in the MegaStick) from the drop-down list in the [Language for non-Unicode programs], then click [Apply]. The system will install the necessary components from your Microsoft Setup CD immediately.



Core Center

Click on the **Core Center** icon in the main menu and the **Core Center** program will be enabled.

CoreCenter (™)- contains OC Menu panel, users can determine their processor and memory type to optimize its memory capacity. Including powerful function with hardware monitor, system alert and instinctive UI of overclocking, **CoreCenter** is just like your PC doctor that can detect, view and adjust the PC hardware and system status during real time operation.

In the left side it shows the current system status including the Vcore, 3.3V, +5V and 12V. In the right side it shows the current PC hardware status such as the CPU & system temperatures and all fans speeds.



When you click the red triangles in the left and right sides, two sub-menus will open for users to overclock, overspec or to adjust the thresholds of system to send out the warning messages. If you click the “**Core Center**” button in the top, a screen pops up for you to choose the **Auto mode** or **User mode** of CPU fan.



Left-wing: Current system status

In the left sub-menu, you can configure the settings of FSB, Vcore, Memory Voltage and AGP Voltage by clicking the radio button in front of each item and make it available (the radio button will be lighted as yellow when selected), use the “+” and “-” buttons to adjust, then click “**OK**” to apply the changes. Then you can click “**Save**” to save the desired FSB you just configured.

Also you may click “**Auto**” to start testing the maximal CPU overclocking value, The CPU FSB will automatically increase the testing value until the PC reboots. Or you may click “**Default**” to restore the default values.

Right-wing: PC hardware status during real time operation

In the right sub-menu, here you can configure the PC hardware status such as CPU & system temperatures and fan speeds. You may use the scroll bars to adjust each item, then click “**OK**” to apply the changes. The values you set for the temperatures are the maximum thresholds for the system for warnings, and the value for fan speeds are the minimum thresholds.

Top-side: User mode/Auto mode

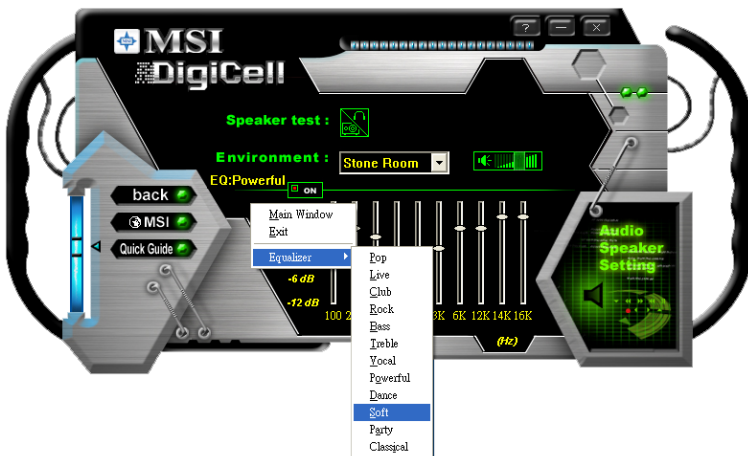
Here you may adjust the CPU fan speed. If you choose **User mode**, you may adjust the CPU fan speed in 8 different modes, from **High Speed** to **Low speed**.

Audio Speaker Setting

In the **Audio Speaker Setting** sub-menu, you can configure the multi-channel audio operation, perform speaker test, and choose the environment you prefer while enjoying the music.

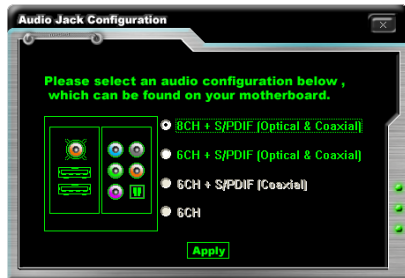


You can scroll the bar of each equalizer to regulate for current playing digital sound source. Also you may click on the “on” button to enable/disable the equalizer function. Once the equalizer function is enabled, you can choose several preset equalizers for your preference. You may also right-click on anywhere to execute this function. After you have chosen one equalizer, it will be indicated next to the “on” button in yellow.



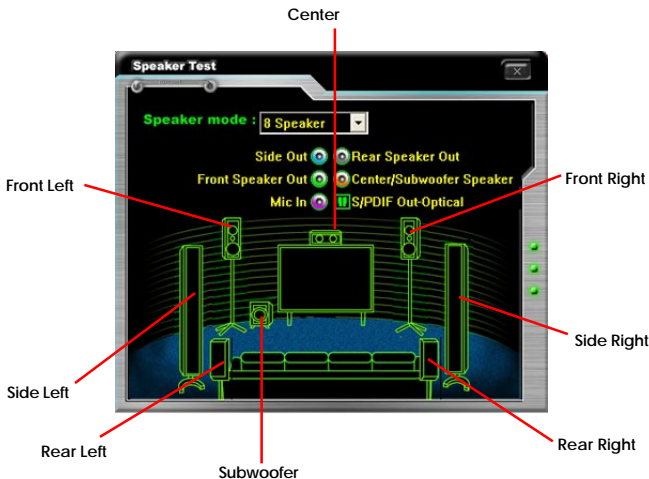
The **Environment** setting lets you to select the environment you like, such as **Cave** or **Convert Hall**.

Click on the “**Speaker test**” button and the following dialogue box will appear:



In this **Speaker Configuration** dialogue box, select the audio configuration which is identical to the audio jack on your mainboard. Once the correct audio configuration is selected, click “**Apply**” to save the change.

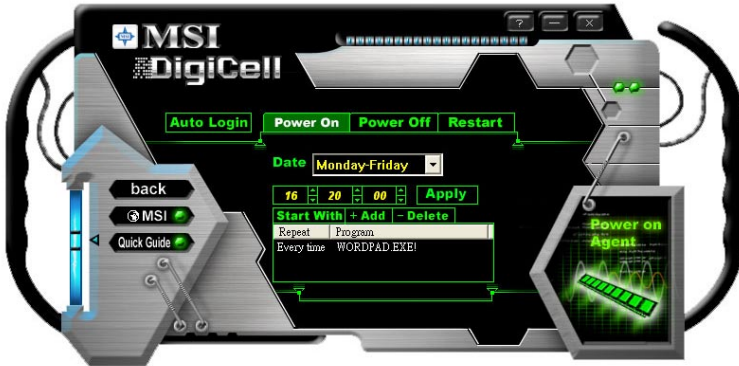
Then the following screen will appear. In this **Speaker Configuration** dialogue box, first select the correct item from the **Speaker mode** drop-down list, and then click on each connected speaker to ensure if Headphone, 2-, 4-, 6-, or 8- channel audio operation is working properly. If any speaker fails to make sound, then check whether the cable is inserted firmly to the connector, or replace the bad speakers with good ones.



Power on Agent

In the **Power on Agent** sub-menu, you can configure setting of power-on, power-off and restarting status.

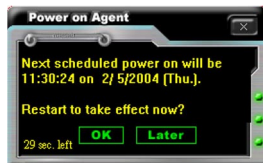
In the screen below, you can set the date, time, start-up programs representatively for power-on, power-off and restarting.



Power On

Here are the available settings for **Power On** function:

- Date** Use the drop-down list to select the date for power-on.
- Time** Use the arrow keys to select the hour/minute/second for power-on, power-off and restarting. Then click **“Apply”** to save the change. As you click **“Apply”**, the following dialogue will appear to show you the next power-on schedule, and the system will start to count down to restart. Click **“OK”** to restart the computer right away or click **“Later”** to restart your computer later.



MSI Reminds You...

Please note that the new setting will not take effect until you restart your computer.

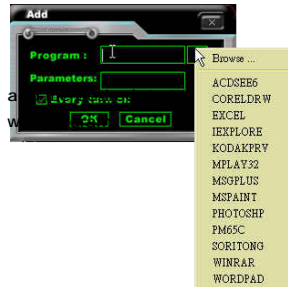
Power Off / Restart

You may configure the time (in the format hh:mm:ss) for the next power-off / restarting.

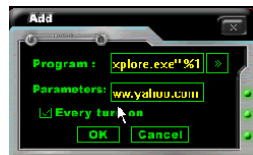
Start With

Use the button “+Add” to add the start-up programs as DigiCell is activated next time. For example, you may like to have Outlook activated or a specified website linked when you get to the office every morning.

- Step 1: Click on the **Program:** field and click “>>” button to browse for the path of Outlook or Internet Explorer.
- Step 2: Click on “OK” to apply the setting.
- Step 3: For specified file or specified website, you may enter the file name with the complete path or the website link in the **Parameters:** field.



To activate Outlook as DigiCell is enabled next time



To activate a specified website as DigiCell is enabled next time

Of course you may use the button “-Delete” to remove the added programs, or you can right-click on the selected program and click **Delete**.



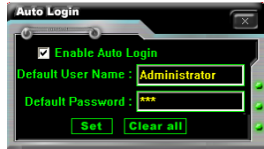
delete the added program



MSI Reminds You...

You can also enable the **Every turn on** function, which will enable the specified program(s) and file(s) every time the Digi Cell utility runs.

Auto Login



Since the **Power On** function allows the system to power on automatically, you may have to enable this **Auto Login** function in the following situations:

1. If you are using a computer belonging to a domain in office, and you need to enter your user name & password everything when you boot up your computer.
2. If there are multi users using the same computer and you'd like to power on the computer automatically with one specific user.

Enable Auto Login

Enable this setting if you want to use the **Auto Login** feature. It supports in the following operating systems: Win9X, Windows ME, Windows 2000 & Windows XP.

Default User Name

It is only available for Windows 2000 & Windows XP.

- If you are using a computer belonging to a domain in office, please enter your login user name in this field.
- If you are using a computer with multi users (for Windows XP operating system), please enter the user name you'd like to auto power-on in this field.

Default Password

It is only available for Windows 2000 & Windows XP.

- If you are using a computer belonging to a domain in office, please enter your login password in this field.
- If you are using a computer with multi-users (for Windows XP operating system), please enter the password for the user name you'd like to auto power-on in this field.



VIA VT8237 Serial ATA RAID Introduction

The Southbridge VT8237 provides a hybrid solution that combines two independent SATA ports for support of up to two Serial ATA (Serial ATA RAID) drives.

Serial ATA (SATA) is the latest generation of the ATA interface. SATA hard drives deliver blistering transfer speeds of up to 150MB/sec. Serial ATA uses long, thin cables, making it easier to connect your drive and improving the airflow inside your PC.

The key features of VT8237 SATA RAID are:

1. Support two SATA + two PATA hard disk drives.
2. Only SATA supports RAID.
3. Supports ATA 133 high performance hard disk drive.
4. Dual independent ATA channels and maximum connection of four hard disk drives allowed.
5. Supports Ultra DMA mode 6/5/4/3/2/1/0, DMA mode 2/1/0, and PIO mode 4/3/2/1/0.
6. Supports RAID 0 and RAID 1.
7. 4 KB to 64 KB striping block size support.
8. Bootable disk or disk array support.
9. Windows-based RAID configure and management software tool. (Compatible with BIOS)
10. Supports hot-swap failed disk drive in RAID 1 array.
11. ATA SMART function support.
12. Microsoft Windows 98, Me, NT4.0, 2000, XP operating systems support.
13. Event log for easy troubleshooting.

Introduction

This section gives a brief introduction on the RAID-related background knowledge and a brief introduction on VIA SATA RAID Host Controller. For users wishing to install their VIA SATA RAID driver and RAID software, proceed to **Driver and RAID Software Installation** section.

RAID Basics

RAID (Redundant Array of Independent Disks) is a method of combining two or more hard disk drives into one logical unit. The advantage of an Array is to provide better performance or data fault tolerance. Fault tolerance is achieved through data redundant operation, where if one drives fails, a mirrored copy of the data can be found on another drive. This can prevent data loss if the operating system fails or hangs. The individual disk drives in an array are called “members”. The configuration information of each member is recorded in the “reserved sector” that identifies the drive as a member. All disk members in a formed disk array are recognized as a single physical drive to the operating system.

Hard disk drives can be combined together through a few different methods. The different methods are referred to as different RAID levels. Different RAID levels represent different performance levels, security levels and implementation costs. The RAID levels which the VIA VT8237 SATA RAID Host Controller supports are RAID 0 and RAID 1. The table below briefly introduced these RAID levels.

RAID Level	No. of Drives	Capacity	Benefits
RAID 0 (Striping)	2	Number drives * 2	Highest performance without data protection
RAID 1 (Mirroring)	2	Smallest size	Data protection

RAID 0 (Striping)

RAID 0 reads and writes sectors of data interleaved between multiple drives. If any disk member fails, it affects the entire array. The disk array data capacity is equal to the number of drive members times the capacity of the smallest member. The striping block size can be set from 4KB to 64KB. RAID 0 does not support fault tolerance.

RAID 1 (Mirroring)

RAID 1 writes duplicate data onto a pair of drives and reads both sets of data in parallel. If one of the mirrored drives suffers a mechanical failure or does not respond, the remaining drive will continue to function. Due to redundancy, the drive capacity of the array is the capacity of the smallest drive. Under a RAID 1 setup, an extra drive called the .spare drive. can be attached. Such a drive will be activated to replace a failed drive that is part of a mirrored array. Due to the fault tolerance, if any RAID 1 drive fails, data access will not be affected as long as there are other working drives in the array.

BIOS Configuration

When the system powers on during the POST (Power-On Self Test) process, press <Tab> key to enter the BIOS configuration.

```
VIA Technologies, Inc. VIA VT6420 RAID BIOS Setting Utility V1.10
Copyright (C) VIA Technologies, Inc. All Right reserved.

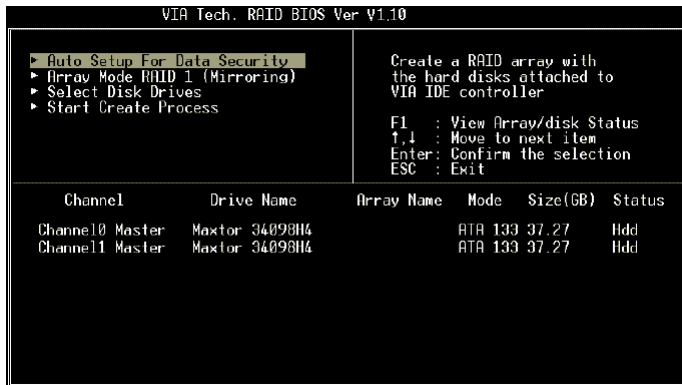
Press < Tab > key into User Window!
Scan Devices, Please wait...
Channel 0 Master: Maxtor 34098H4
Channel 1 Master: Maxtor 34098H4
```

The Serial ATA RAID volume may be configured using the VIA Tech. RAID BIOS. Always use the arrow keys to navigate the main menu, use up and down arrow key to select the each item and press <Enter> to call out the list of creation steps. The main interface of BIOS configuration utility is as below:

VIA Tech. RAID BIOS Ver V1.10					
<ul style="list-style-type: none"> ▶ Create Array ▶ Delete Array ▶ Create/Delete Spare ▶ Select Boot Array ▶ Serial Number View 			Create a RAID array with the hard disks attached to VIA IDE controller F1 : View Array/disk Status ↑,↓ : Move to next item Enter: Confirm the selection ESC : Exit		
Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel0 Master	Maxtor 34098H4		ATA 133	37.27	Hdd
Channel1 Master	Maxtor 34098H4		ATA 133	37.27	Hdd

Create Disk Array

Use the up and down arrow keys to select the **Create Array** command and press <Enter>.



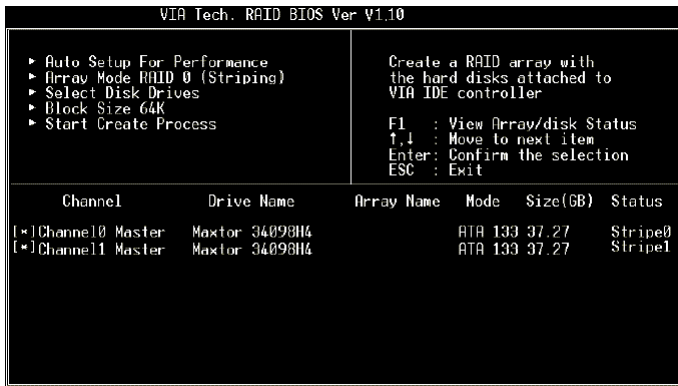
MSI Reminds You...

The "Channel", "Drive Name", "Mode" and "Size (GB)" in the following example might be different from your system.

Select **Array Mode** and press <Enter>, a list of array modes will appear. Highlight the target array mode that you want to create, and press <Enter> to confirm the selection. If RAID 1 or RAID 0/1 is selected, an option list will popup and enable the users to select **Create only** or **Create and duplicate**. **Create only** will allow BIOS to only create an array. The data on the mirroring drive may be different from the source drive. **Create and duplicate** lets BIOS copy the data from the source to the mirroring drive.



After array mode is selected, there are two methods to create a disk array. One method is “**Auto Setup**” and the other one is “**Select Disk Drives**”. **Auto Setup** allows BIOS to select the disk drives and create arrays automatically, but it does not duplicate the mirroring drives even if the user selected **Create and duplicate** for RAID 1. It is recommended all disk drives are new ones when wanting to create an array. **Select Disk Drives** lets the user select the array drives by their requirements. When using **Select Disk Drives**, the channel column will be activated. Highlight the target drives that you want to use and press <Enter> to select them. After all drives have been selected, press <Esc> to go back to the creation steps menu.



If user selects a RAID 0 array in step 2, the block size of the array can also be selected. Use the arrow key to highlight **Block Size** and press <Enter>, then select a block size from the popup menu. The block size can be 4KB to 64KB.





MSI Reminds You...

Even though 64KB is the recommended setting for most users, you should choose the block size value which is best suited to your specific RAID usage model.

4KB: For specialized usage models requiring 4KB blocks

8KB: For specialized usage models requiring 8KB blocks

16KB: Best for sequential transfers

32KB: Good for sequential transfers

64KB: Optimal setting

Use the arrow key to highlight **Start Create Process** and press <Enter>. A warning message will appear, Press **Y** to finish the creation, or press **N** to cancel the creation. Important note: All existing content in the hard drive will be destroyed after array creation.

Delete Disk Array

A RAID can be deleted after it has been created. To delete a RAID, use the following steps:

1. Select **Delete Array** in the main menu and press <Enter>. The channel column will be activated.
2. Select the member of an array that is to be deleted and press <Enter>. A warning message will show up, press **Y** to delete or press **N** to cancel.



Deleting a disk array will destroy all the data on the disk array except RAID 1 arrays. When a RAID is deleted, the data on these two hard disk drives will be reserved and become two normal disk drives.

Create and Delete Spare Hard Drive

If a RAID 1 array is created and there are drives that do not belong to other arrays, the one that has a capacity which is equal to or greater than the array capacity can be selected as a spare drive for the RAID 1 array. Select **Create/Delete Spare** and press <Enter>, the channel column will then be activated. Select the drive that you want to use as a spare drive and press <Enter>, the selected drive will be marked as **Spare**. The spare drive cannot be accessed in an OS.

To delete a spare drive, highlight **Create/Delete Spare** and press <Enter>. The spare drive will be highlighted, press <Enter> to delete the spare drive.



View Serial Number of Hard Drive

Highlight **Serial Number View** and press <Enter>. Use arrow key to select a drive, the selected drive's serial number can be viewed in the last column. The serial number is assigned by the disk drive manufacturer.

Press the **F1** key to show the array status on the lower screen. If there are no disk arrays then nothing will be displayed on the screen.



Duplicate Critical RAID 1 Array

When booting up the system, BIOS will detect if the RAID 1 array has any inconsistencies between user data and backup data. If BIOS detects any inconsistencies, the status of the disk array will be marked as critical, and BIOS will prompt the user to duplicate the RAID 1 in order to ensure the backup data consistency with the user data.

Critical RAID 1		Critical Status			
Duplicate now Continue to boot		The RAID 1 array needs to be duplicated to ensure data consistency. Fault Add Found: Channel 1 Device 0 Fault			
Remaining members of the failed array					
Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel11 Device0	IC35L040AVVA07-0	Array0	ATA 100	38.34	Mirror
Channel10 Device0	IC35L040AVVA07-0	Array0	ATA 100	38.34	Source
Note: 1) Press <ESC> to Exit. 2) After Execute, Press <TAB> immediately can into Utility Window!					

If user selects **Continue to boot**, it will enable duplicating the array after booting into OS.

Rebuild Broken RAID 1 Array

When booting up the system, BIOS will detect if any member disk drives of RAID has failed or is absent. If BIOS detects any disk drive failures or missing disk drives, the status of the array will be marked as broken.

If BIOS detects a broken RAID 1 array but there is a spare hard drive available for rebuilding the broken array, the spare hard drive will automatically become the mirroring drive. BIOS will show a main interface just like a duplicated RAID 1. Selecting **Continue to boot** enables the user to duplicate the array after booting into operating system.

If BIOS detects a broken RAID 1 array but there is no spare hard drive available for rebuilding the array, BIOS will provide several operations to solve such problem.

Broken RAID 1		Critical Status			
Power off and check the failed drive Destroy the Mirroring Relationship Choose replacement drive and rebuild Continue to boot		A disk member of a mirroring array has failed or is not responding. The array is still functional, but fault tolerance is disabled.			
Remaining members of the failed array					
Channel	Drive Name	Array Name	Mode	Size(GB)	Status
Channel10 Device0	IC35L040AVVA07-0	Array0	ATA 100	38.34	Broken
Note: 1) Press <ESC> to Exit. 2) After Execute, Press <TAB> immediately can into Utility Window!					

1. Power off and Check the Failed Drive:

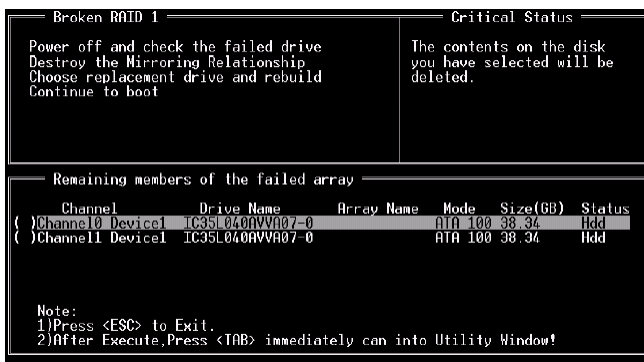
This item turns off the computer and replaces the failed hard drive with a good one. If your computer does not support APM, you must turn off your computer manually. After replacing the hard drive, boot into BIOS and select **Choose replacement drive and rebuild** to rebuild the broken array.

2. Destroy the Mirroring Relationship:

This item cancels the data mirroring relationship of the broken array. For broken RAID 1 arrays, the data on the surviving disk will remain after the destroy operation. However, **Destroy the Mirroring Relationship** is not recommend because the data on the remaining disk will be lost when the hard drive is used to create another RAID 1 array.

3. Choose Replacement Drive and Rebuild:

This item enables users to select an already-connected hard drive to rebuild the broken array. After choosing a hard drive, the channel column will be activated.



Highlight the target hard drive and press <Enter>, a warning message will appear. Press **Y** to use that hard drive to rebuild, or press **N** to cancel. Please note selecting option **Y** will destroy all the data on the selected hard drive.

4. Continue to boot:

This item enables BIOS to skip the problem and continue booting into OS.

Installing RAID Software & Drivers

Install Driver in Windows OS

► New Windows OS (2000/XP/NT4) Installation

The following details the installation of the drivers while installing Windows XP.

1. Start the installation:

Boot from the CD-ROM. Press **F6** when the message "Press F6 if you need to install third party SCSI or RAID driver" appears.

2. When the Windows Setup window is generated, press **S** to specify an Additional Device(s).

3. Insert the driver diskette **VIA VT6420/VT8237 Disk Driver** into drive A: and press <Enter>.

4. Depending on your operation system, choose **VIA Serial ATA RAID Controller(Windows XP)**, **VIA Serial ATA RAID Controller(Windows 2000)** or **VIA Serial ATA RAID Controller(Windows NT4)** from the list that appears on Windows XP Setup screen, press the <Enter> key.

5. Press <Enter> to continue with installation or if you need to specify any additional devices to be installed, do so at this time. Once all devices are specified, press <Enter> to continue with installation.

6. From the Windows XP Setup screen, press the <Enter> key. Setup will now load all device files and then continue the Windows XP installation

► Existing Windows XP Driver Installation

1. Insert the MSI CD into the CD-ROM drive.

2. The CD will auto-run and the setup screen will appear.

3. Under the Driver tab, click on **VIA SATA RAID Utility**.

4. The drivers will be automatically installed.

► Confirming Windows XP Driver Installation

1. From Windows XP, open the **Control Panel** from **My Computer** followed by the System icon.

2. Choose the **Hardware** tab, then click the **Device Manager** tab.

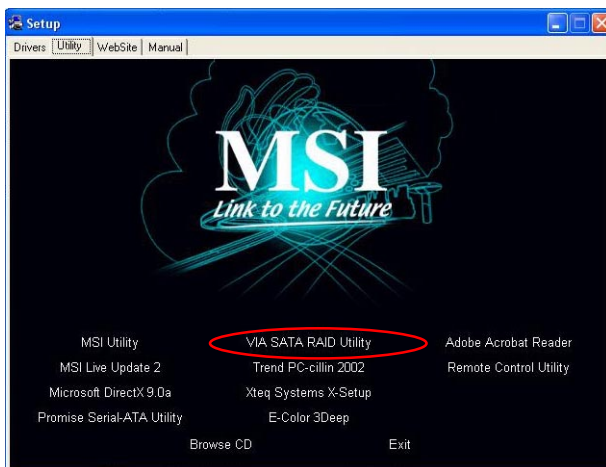
3. Click the "+" in front of the **SCSI and RAID Controllers** hardware type. The driver **VIA IDE RAID Host Controller** should appear.

Installation of VIA SATA RAID Utility

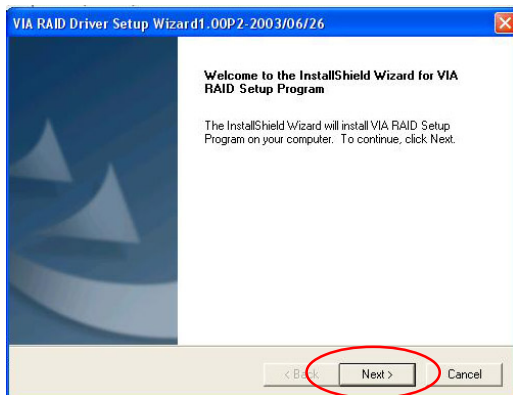
The VIA SATA RAID Utility is the software package that enables high-performance RAID 0 arrays in the Windows® XP operating system. This version of VIA SATA RAID Utility contains the following key features:

- Serial ATA RAID driver for Windows XP
- VIA SATA RAID utility
- RAID0 and RAID1 functions

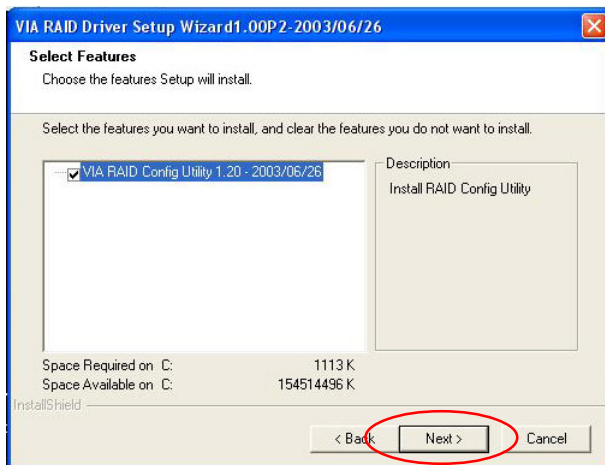
Insert the MSI CD and click on the **VIA SATA RAID Utility** to install the software.



The **InstallShield Wizard** will begin automatically for installation. Click on the **Next** button to proceed the installation in the welcoming window.

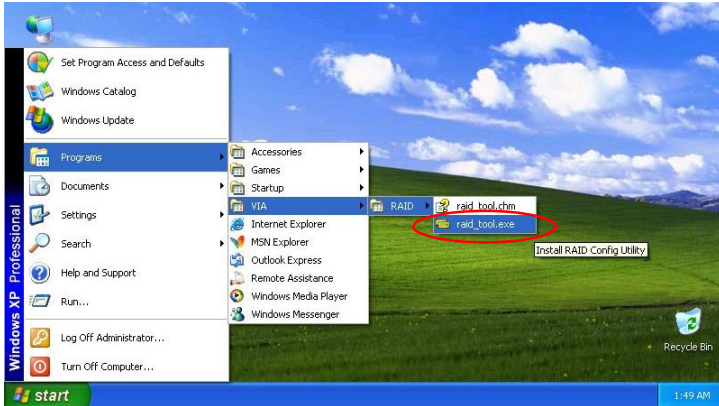



Put a check mark in the check box to install the feature you want. Then click **Next** button to proceed the installation.



Using VIA RAID Tool

Once the installation is complete, go to **Start ----> Programs ----> VIA ---->raid_tool.exe** to enable **VIA RAID Tool**.



After the software is finished installation, it will automatically started every time Windows is initiated. You may double-click on the  icon shown in the system tray of the tool bar to launch the **VIA RAID Tool** utility.



The main interface is divided into two windows and the toolbar above contain the main functions. Click on these toolbar buttons to execute their specific functions. The left windowpane displays the controller and disk drives and the right window-pane displays the details of the controller or disk drives. The available features are as following:



View by Controller





View by Devices

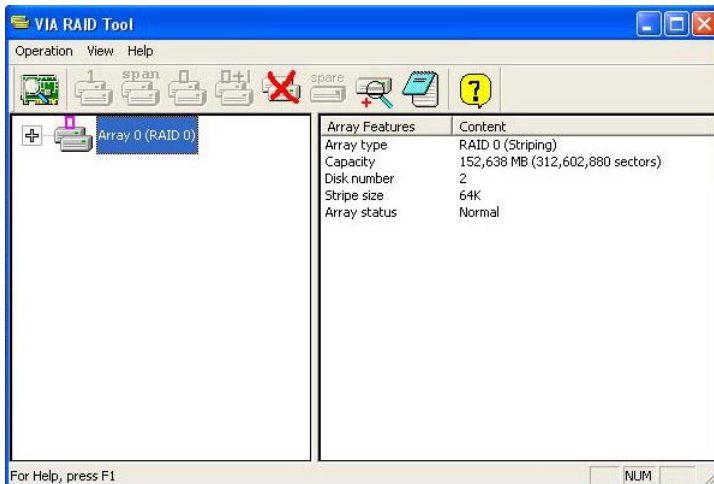


View Event log

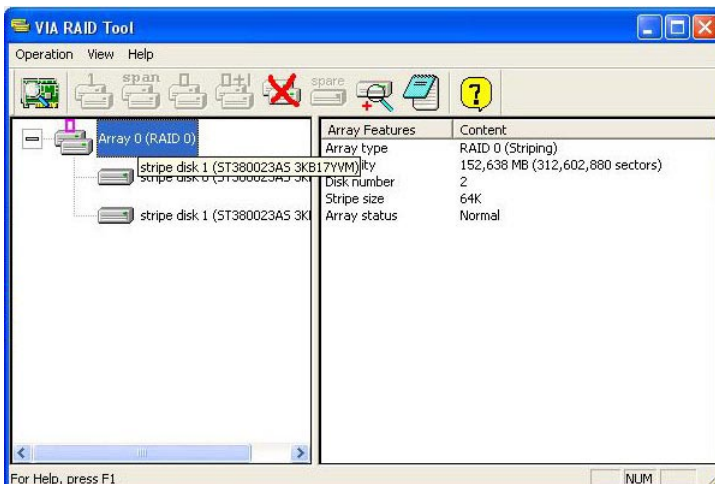


Help Topics

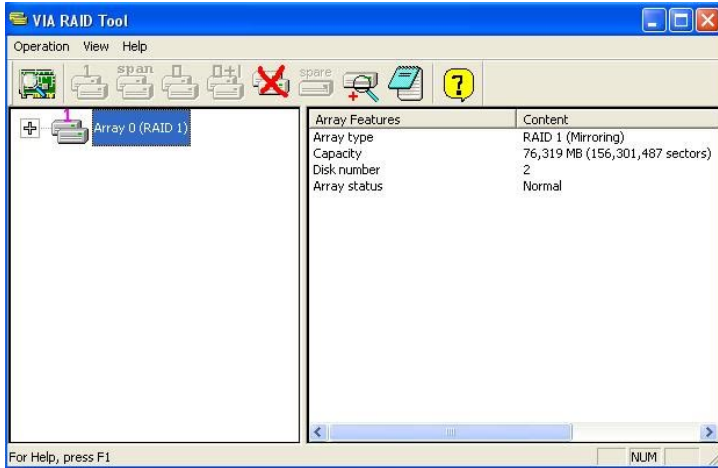
Click on  or  button to determine the viewing type of left window pane. There are two viewing types: By controllers and by device. Click on the object in the left window pane to display the status of the object in the right windowpane. The following screen shows the status of Array 0---RAID 0.



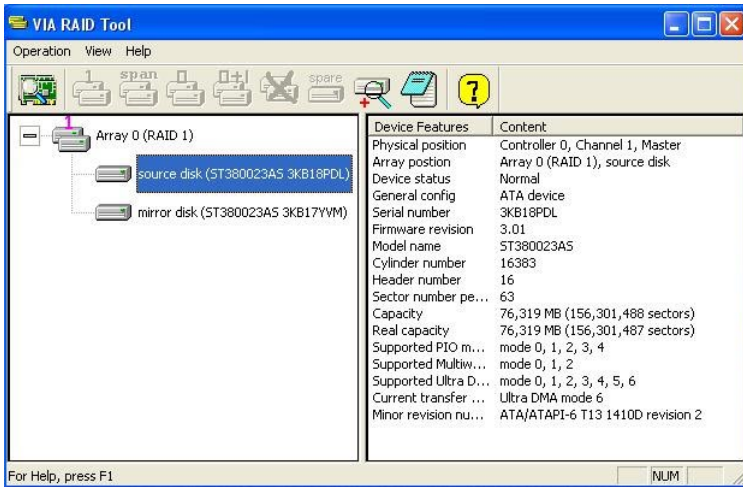
Click on the plus (+) symbol next to Array 0---RAID 0 to see the details of each disk.



You may also use the same  or  button to view the statuses of Array 0--RAID 1.



Click on the plus (+) symbol next to Array 0---RAID 1 to see the details of each disk.



Appendix A: Using 2-, 4- & 6-Channel Audio Function

The mainboard is equipped with VIA VT1617A chip, which provides support for 6-channel audio output, including 2 Front, 2 Rear, 1 Center and 1 Subwoofer channel. VT1617A allows the board to attach 4 or 6 speakers for better surround sound effect. The section will tell you how to install and use 4-/6-channel audio function on the board.

Installing the Audio Driver

You need to install the driver for VIA VT1617 chip to function properly before you can get access to 4-/6-channel audio operations. Follow the procedures described below to install the drivers for different operating systems.

Installation for Windows 98SE/ME/2000/XP

For Windows® 2000, you must install Windows® 2000 Service Pack2 or later before installing the driver.

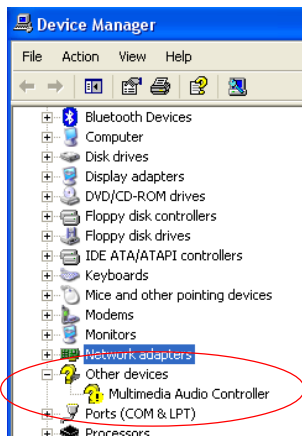
The following illustrations are based on Windows® XP environment and could look slightly different if you install the drivers in different operating systems.

1. Insert the companion CD into the CD-ROM drive. The setup screen will automatically appear.
2. Click **VIA Smart5.1CH Sound Drivers**.




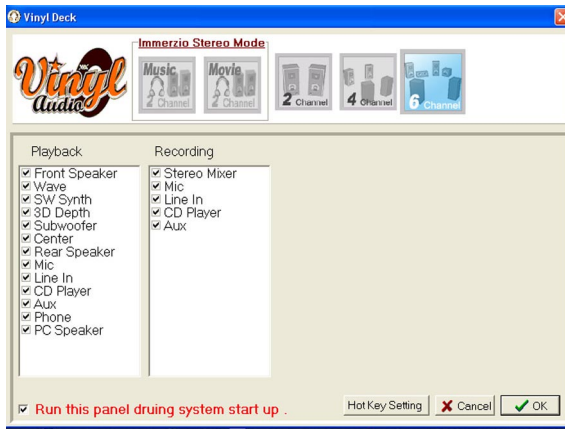
Special Notice during Installation

Once you are finishing the installation of your system, please right-click on [My Computer] on the desktop, and choose [Properties] ---> [Hardware] ---> [Device Manager]. If you can see the question mark (?) next to the <Other devices> & <Multimedia Audio Controller>, it means the system detects the audio codec in your system item and the **VIA Smart5.1CH Sound Drivers** will appear on your CD.




3. Click **Next** to install the AC'97 Audio software, and click **Finish** to restart the system.

4. You will find the  icon in the system tray and on the desktop. Double-click the icon on the desktop or right-click on the icon in the system tray. Also, you can right-click on the icon in the system tray and choose **Properties**, and the following screen will appear to show some basic settings about the audio configuration.

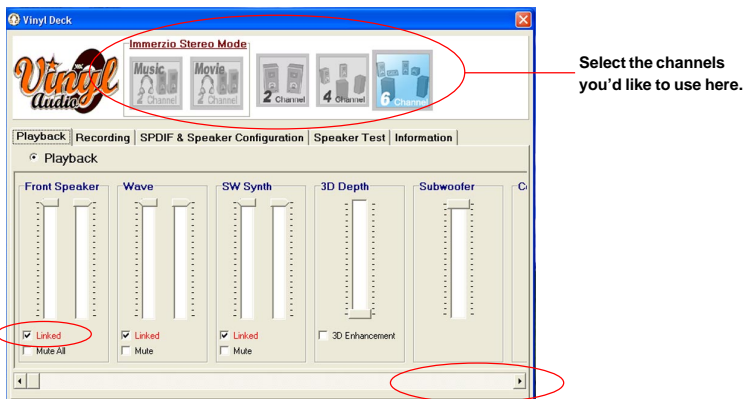


Software Configuration

After installing the audio driver, you are able to use the 4-/6-channel audio feature now. Click the audio icon  from the window tray at the lower-right corner of the screen to activate the **AC97 Audio Configuration**.

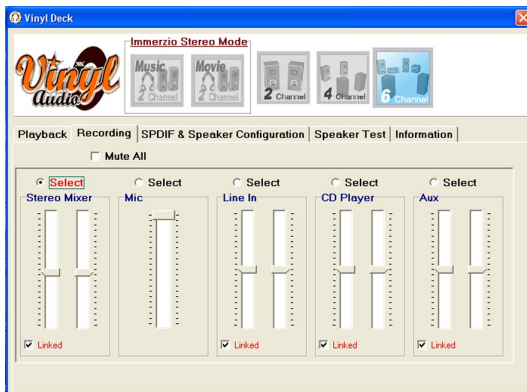
Playback

Here you can regulate the volume of each output. Click on **Link** to regulate the left-right speakers simultaneously, or uncheck it to regulate them separately. Use the bar scrolling to the right for more outputs.



Recording

Here you can choose the preferred recording input. Click **Select** to choose the one you like. Choosing **Mic** allows you to record the audio through the connected microphones, **Line In** allows you to record to record through the connected line-in device, and etc. Choosing **Stereo Mixer** allows you to record the audio through all inputs.



SPDIF & Speaker Configuration

Here you can configure and enable the functions related to S/PDIF & speakers. Move between the items in **S/PDIF Control** and **Advanced control** and the representing description and illustrations will display.

If you'd like to use the S/PDIF function for digital audio transmission, please check the **S/PDIF Enable** and/or **Analog in to S/PDIF Out** check boxes as wished. While enabling **Analog in to S/PDIF Out** function, the volumes should be adjusted in the **Mic**, **Line In** and **CD Player** parts in the **Recording** tab.

For the expander and Center/Subwoofer speaker exchange, please check the **EXpander** and/or **Exchange Center/LFT** check boxes as wished.

Detail description
of the selected
items in the right



Speaker Test

Here you can click on each speaker to test its function, and increase/decrease the volume.



Information

Here it provides the information about Vinyl Deck, including the driver version, codec type, and OS version... etc.



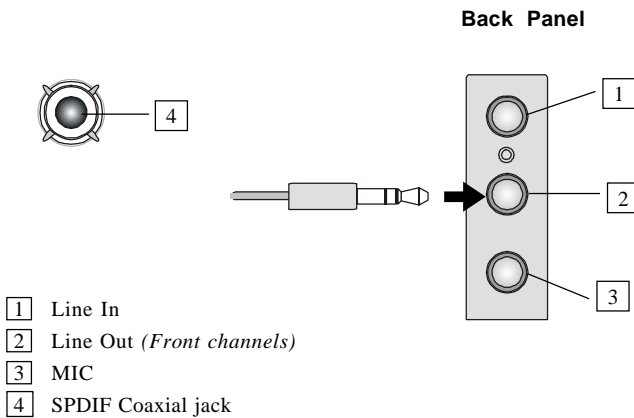
Using 2-, 4- & 6- Channel Audio Function

Connecting the Speakers

When you have set the Multi-Channel Audio Function mode properly in the software utility, connect your speakers to the correct phone jacks in accordance with the setting in software utility.

■ 2-Channel Mode for Stereo-Speaker Output

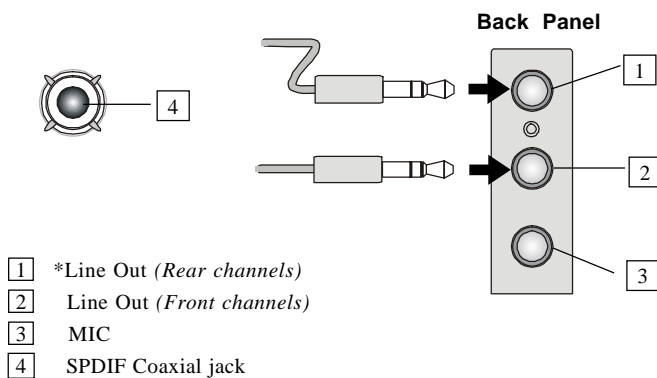
Refer to the following diagram and caption for the function of each phone jack on the back panel when 2-Channel Mode is selected.



■ 4-Channel Mode for 4-Speaker Output

The audio jacks on the back panel always provide 2-channel analog audio output function, however these audio jacks can be transformed to 4- or 6-channel analog audio jacks by selecting the corresponding multi-channel operation from **No. of Speakers**.

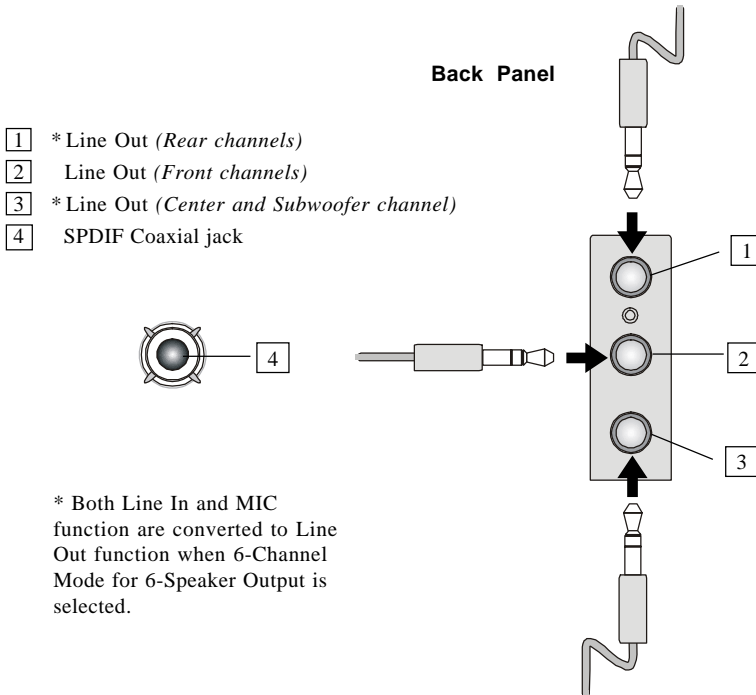
Refer to the following diagram and caption for the function of each jack on the back panel when 4-Channel Mode is selected.



* Line In function is converted to Line Out function when 4-Channel Mode for 4-Speaker Output is selected.

■ **6-Channel Mode for 6-Speaker Output**

Refer to the following diagram and caption for the function of each jack on the back panel when 6-Channel Mode is selected.



MSI Reminds You...

If the audio signals coming from the Center and Subwoofer speaker are swapped when you play video or music on the computer, a converter may be required to exchange center and subwoofer audio signals. The converter can be purchased from a speaker store.